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ABSTRACT

This report discusses findings from a comprehensive national survey of the effectiveness of magnet schools in improving the quality of public education and in assisting school desegregation. Chapter I provides background information on the concept and evolution of magnet schools; discusses the purposes of the national survey and several issues identified by the National Commission on Excellence in Education; and explains the scope and objectives of the survey and final report. Chapter II explains the research design, research issues, and comparative case study methodology and describes the sampling plan and the selected sample of urban school districts. Chapters III, IV, V, and VI report study findings on the major research questions: education quality; magnet schools' effect on desegregation; magnet school costs; and the role of magnet schools in urban education and in meeting urban education problems, particularly the relationship between district leadership/community involvement and the effectiveness of a magnet program. Chapter VII summarizes all the findings and outlines the policy options for magnet school programs. Appendices contain a summary of survey methodology and sampling procedures; summaries of sample district community settings and characteristics of magnet schools nationwide; data on quality of education, desegregation, cost data collection, and magnet schools' relationship to urban school districts and communities; and program summaries of quality magnet schools. (CMG)

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SURVEY OF MAGNET SCHOOLS
ANALYZING A MODEL FOR QUALITY INTEGRATED EDUCATION

UD 023 321

Final Report of a National Study
for the
U.S. Department of Education
Office of Planning, Budget and Evaluation

Prepared by
JAMES H. LOWRY & ASSOCIATES
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SURVEY OF MAGNET SCHOOLS

ANALYZING A MODEL FOR QUALITY INTEGRATED EDUCATION

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September 1983

Final Report of a National Study for
U.S. Department of Education
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The findings and conclusions in this report are those of the study contractor and do not necessarily reflect the views or policies of the U.S. Department of Education

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PREFACE

James H. Lowry & Associates is pleased to present the final report for a Survey of Magnet Schools: Analyzing a Model for Quality Integrated Education, to the U.S. Department of Education, Office of Planning, Budget and Evaluation.

The report responds to the Department's request for a comprehensive, national survey of the effectiveness of magnet schools in improving public education quality and assisting school desegregation. This request stems from the need of national, state and local legislators, educators and parents, to know the effect--and potential for effect--of magnet schools on improving public education. Specifically, they are interested in issues such as:

- Do students in magnet schools learn more than students in other schools?
- Do magnet schools provide equal learning opportunities for all students?
- How does the curriculum, faculty selection, quality of instruction, and related academic issues compare with other schools or educational programs?
- What factors in a school district contribute to the success of magnet schools?

To address these and other issues, the survey of magnet schools was designed for the following purposes:

- To evaluate the magnet school for its contribution to the improvement of urban education and to voluntarily desegregating, and to the effects on students.

- To assess how urban school districts can develop and operate successful magnet school programs without conflicting with the purposes of local school districts and community groups.
- To identify what issues, plans, leaders, resources, and support are necessary in the development of an effective magnet school program.
- To develop the process for adopting an effective magnet school program to a local school district's objectives, needs and interests and show how this process can be a means of curriculum innovation.

This design enables our national survey to serve both as a tool for evaluating the magnet schools' success in improving the quality of public education and for studying how the magnet schools' definition, development and implementation contributes to its success or failure.

For purposes of this survey, we have defined a magnet school as follows:

1. A distinctive school curriculum based on a special theme or method of instruction,
2. A unique district role and purpose for voluntary desegregation,
3. Voluntary choice of the school by the student and the parent,
4. Open access to school enrollment beyond the regular attendance zone.

This definition was applied throughout all survey steps and tasks. It should be referred to throughout the discussion of the research issues, study design, analysis and findings.

Our survey findings are presented in a manner that will aid the Department in its efforts to guide national education policy and practice. Survey findings also are presented to aid state and local education administrators, parents and teachers in making decisions for educational improvements. Accordingly, the findings are organized and presented as follows:

Chapter I provides background information on the concept and evolution of magnet schools; it discusses the purposes of the national survey including detailed information on several issues identified by the National Commission on Excellence in Education; and it explains the scope and objectives of the survey and final report.

Chapter II explains the research design, research issues and comparative case methodology and describes the sampling plan and the selected sample of urban school districts.

Chapters III, IV, V and VI report study findings on the major research questions. Chapter III explains our study findings on education quality. Chapter IV describes how magnet schools affect desegregation. Chapter V addresses the analysis of magnet school costs. Chapter VI analyzes the role of magnet schools in urban education and in meeting urban education problems, particularly the relationship of district leadership and community involvement to the effectiveness of a district magnet program.

Chapter VII summarizes all of the findings and outlines the Policy Options for a magnet schools program. A Guide to Magnet School Development separately accompanies this report. The Guide gives an outline of the key steps in magnet program development, describes major management challenges, and summarizes six effective magnet schools.

CHAPTER 1

THE MAGNET SCHOOL'S ROLE
IN AMERICAN PUBLIC EDUCATION
AND THE OBJECTIVES OF
THE SURVEY OF MAGNET SCHOOLS

INTRODUCTION

The magnet school concept has grown rapidly in urban public education due to its appeal as an educational innovation through a theme-based curriculum and as a method of voluntary desegregation. Magnet schools have developed and expanded in American public education over the last decade to now include over 1000 schools in more than 130 of the largest urban school districts. Many of the administrators, school board members, teachers and parents in these districts found the magnet school to be an attractive model for improving education quality and offering an alternate approach to desegregation. Some urban districts have developed highly successful magnet programs, while in others questions have been raised concerning the actual educational and desegregative benefits and cost-effectiveness of magnet schools.

Although much has been written on the topic of magnet schools, this is the first national study of the effects and degree of success of this model across a representative sample of urban districts that operate magnet programs. The Department of Education requested that the study address questions concerning the impact of magnet schools on the quality of education and on desegregation, as well as analyze the process by which magnet schools are effectively developed and identify the factors that lead to a successful program.

THE MAGNET SCHOOL AND THE EDUCATION ISSUES OF THE 1980'S

This national study of magnet schools comes at a most important point in the growth and development of the magnet school concept. Even more importantly, the study is being completed at a time when education in American public schools has become a major national issue. The Secretary of Education's National Commission on Excellence in Education has provided impetus to reexamination of our commitment to quality public education and consideration of approaches to reform of education curricula, methods and support.

There are five central issues in the current discussion of the problems of public education that parallel several of the objectives of this study of magnet schools:

- Identifying models of educational excellence
- Improving education quality in core academic subjects
- Advancing equal educational opportunity
- Offering choice and diversity in public education
- Regaining the public's confidence in their schools.

1. Models of Educational Excellence

One of the major recommendations of the National Commission is to encourage and develop educational excellence in our schools:

> "We define 'excellence' to mean several related things. At the level of the individual learner it means performing on the boundary of individual ability in ways that test and push back personal limits in school and in the workplace. Excellence characterizes a school or college that sets high expectations and goals for all learners, then tries in every way possible to help students reach them." (1983)

The magnet school offers school districts a method of developing opportunities for excellence in teaching and learning based on the idea of a theme-based curriculum that voluntarily attracts students through their interests.

2. Improving Education Quality in Core Academic Subjects

A second major recommendation of the National Commission on Excellence, as well as the Task Force on Education for Economic Growth (1983), is that school districts improve and expand course offerings in core academic subjects at the high school level.

The trend toward more course electives and nonacademic courses in high schools reduces time and incentive for basic and advanced courses in core areas. It is also well known by educators that many students devote a large part of their energy, time and attention to extracurricular activities with the effect that academic studies take secondary importance. The magnet schools show strong potential for organizing and directing the attention of secondary education toward the academic curriculum. The magnet school can also be a means of renewing the interests and motivation of teachers by organizing their efforts around a common academic goal and developing inter-disciplinary curriculum planning, writing, and quality improvements.

3. Equal Educational Opportunity

The magnet school concept was developed as a means of ensuring equal opportunity through a racially/ethnically mixed student body. Magnet schools offer a model of an alternative voluntary method for desegregation. By enrolling students according to their interests in a curricular theme, magnets can voluntarily bring together students from different racial/ethnic groups and different levels of academic ability.

4. Choice and Diversity in Public Education

A fourth issue is the extent to which school districts should offer diversity in methods of instruction and choices for parents and students within the framework of the district curriculum. The old concept of the "alternative school" which served students who had dropped out or were asked to leave "regular schools" has given way to a wide range of innovations within the regular system, e.g. open classroom, traditional or basic skills education, education centers, computer-based education, experience-based career education, and individualized instruction. The

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magnet school provides a model for choice and diversity. A magnet typically emphasizes core academic subjects, but offers a different educational approach or method through a theme-based curriculum and voluntary enrolment by student and parent.

5. Renewing Confidence in Public Schools

A fifth issue that is central to many of the recommendations of the National Commission, and several of the other recent studies on ways to improve public education,* is that school districts need to regain the confidence of parents and the community.

By voluntary enrollment, and by the public attention that magnet schools draw, the concept has the potential to significantly help a district in improving its image within the community and rebuilding the reputation of the public schools. A magnet school program may be a catalyst for increasing community interest in quality education or serve as part of a larger reform strategy.

Relevance of the Magnet Schools Study

Since its inception in 1981, the potential importance and usefulness of the findings of the magnet school study have increased as more Americans have recognized the serious problems that confront our nation's schools. The attention focused on the issues raised by the National Commission has aided educators by increasing serious consideration of their proposals for reform and increased support for education. Thus, within the context of the current discussions on improving public education, the magnet school study provides analysis of a model for educational quality and excellence as it has been operating in some urban districts, and objective assessment of its potential as a method of improving urban education in more districts and schools.

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*Other recent national studies include: the Ford Foundation study of Effective Comprehensive High Schools; the Carnegie Foundation study on the American High School and John Goodlad's eight year study of public education in thirteen school districts across the country.

EVOLUTION OF THE MAGNET SCHOOL IN AMERICAN EDUCATION

The first magnet schools were developed in large urban districts that sought a means of reducing racial isolation in public school through voluntary means and as an option to mandatory assignment. The models for magnet school curricula were based on well-known specialty schools that had offered advanced programs to selected students for many years, such as Bronx School of Science, Boston Latin School and Lane Tech in Chicago. Themes for the original magnet schools developed in the late 1960's and early 70's reflected the speciality-school themes of science, mathematics and performing arts, with the major difference that magnets emphasized voluntary choice by interest rather than selection by testing.

With the growth of interest in magnet schools, particularly among northern districts in the process of desegregating, a wider range of types of magnet themes were developed which reflected other kinds of educational innovations in local districts: open school, alternative school, career exploration, and traditional schools, as well as other curricular themes such as health science, foreign languages, humanities, business management and computer science. The basic idea of developing magnet themes was that a district would determine the interests of students and parents in a special theme program and develop theme-based curricula in schools that would attract a racially heterogeneous mix of students. The concept was viewed as having great potential for solving several prevalent problems of urban school districts.

The entry of the federal government into support of magnet school innovations in the mid-1970's provided a major boost to the growth and expansion of the concept. The U.S. Congress passed an amendment to the Emergency School Aid Act (ESAA) in 1976 that authorized grants to support planning and implementing magnet schools for districts in the process of desegregating.

Federal support for magnet schools had two major effects on the growing movement of magnet schools. First, the magnet school concept became closely identified with desegregation. The program regulations limited eligibility to districts that had a magnet schools program plan that would reduce overall racial isolation in the district by a minimum of five percent. Additionally, magnet funding was often viewed as part of the general federal support for desegregation under ESAA. The ESAA magnet grants focused only little attention on education objectives for magnet schools.

The second effect of the ESAA magnet grants was to increase the interest and attention of urban districts toward magnet schools. A number of districts that had received federal funding, and others that had developed magnet programs with local funds, formed an informal association to share magnet designs and strategies. More districts gradually learned of the programs that had been successfully developed, e.g. Dallas, Cincinnati and San Diego, and the movement expanded. In the first year of ESAA magnet funding in 1976, only 14 districts applied, but by 1980 over 100 district applications were received by the Department of Education and 65 programs were funded at a total of approximately $30 million per year.

Although the most attention at the national level was devoted to magnet schools' role in offering voluntary desegregation options to mandatory assignment, or "forced busing," interest in magnet schools actually developed and grew mainly at the local district level. In addition to interest in voluntary desegregation options, several other trends in public education developing since the 1960's increased the push for magnet schools from parents, teachers and administrators:

1. Growth in interest in educational options and diversity, including diversity in curriculum teaching methods and school design;

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2. Renewed involvement of parents and community leaders in decisions related to public education and concern with the quality of education;
3. Greater attention on the outcomes from public education, including more career education and preparation for decisions on further education or training.

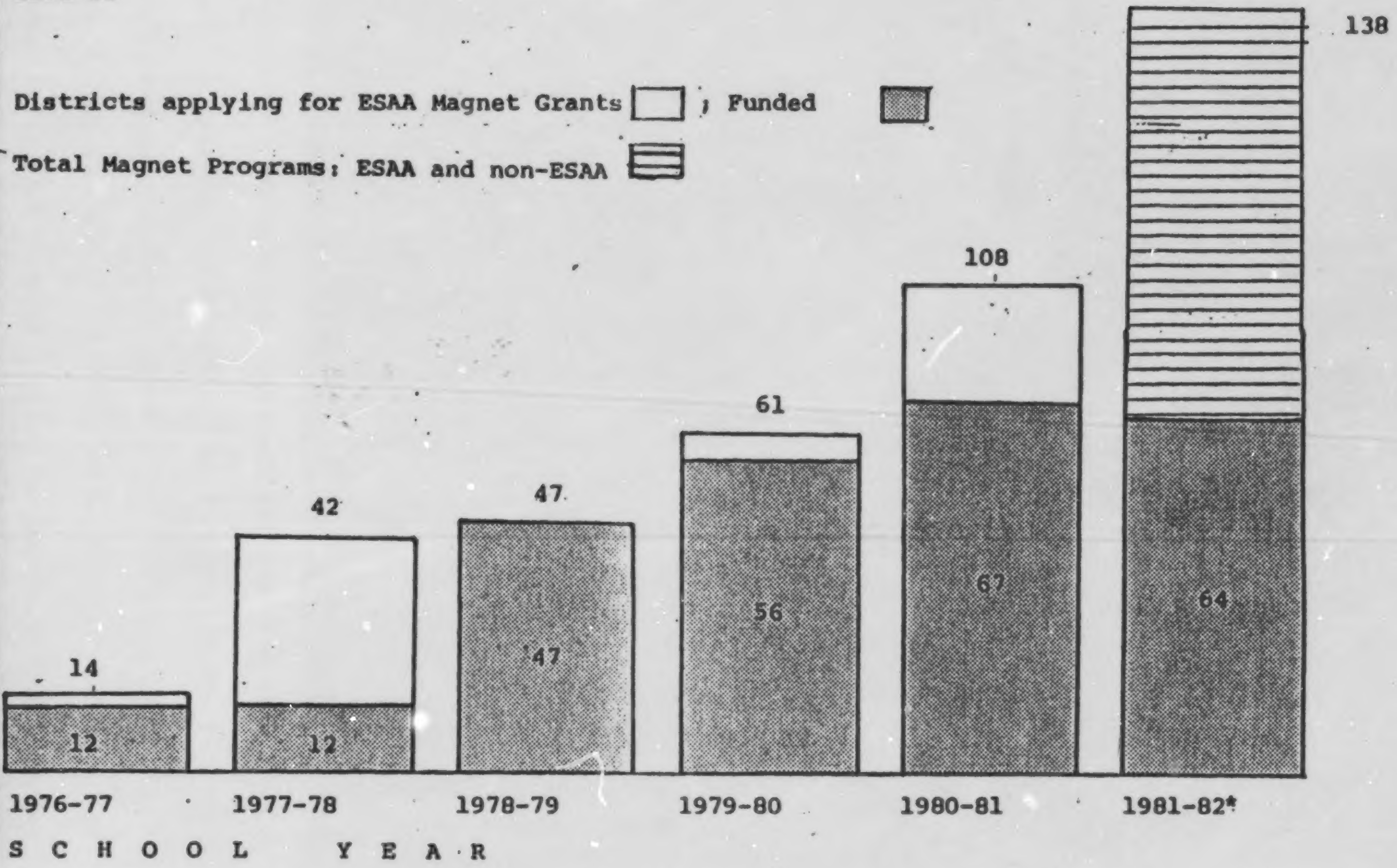
By the early 1980's, the number of districts that had implemented magnet schools had grown far beyond the federal role in support of programs (see Table 1). The concept had attained its own popularity due to the combination of urban school districts' needs and the interests of parents, students and communities in education innovation.

The data we collected on the population of magnet schools nationwide, shown in Table 2, demonstrate that more districts have now developed magnet schools without federal support (74) than received ESAA magnet grants the last year of funding (64 in 1981-82). The data also demonstrate that magnet schools are mainly found in large urban districts: 91 of the 275 districts with over 20,000 students have developed magnet school programs.

It is apparent that the development of magnet schools has spread widely across the country. The absolute number of districts with magnets is greatest in the Northeast, Midwest and West regions, but the proportion of urban districts with magnet schools is highest in the Southeast. Table 2 also shows that the size of magnet school programs vary widely between districts, partly in proportion to the district size.

Table I.1

GROWTH OF MAGNET SCHOOLS IN URBAN EDUCATION
1976-82



*138 districts with Magnet School programs (ESAA and non-ESAA). Based on a survey of all school districts having over 20,000 enrollment (275) and all other districts ever applying for ESAA Magnet Grants (75).

Table I.2

MAGNET SCHOOLS IN UNITED STATES URBAN PUBLIC SCHOOL DISTIRCTS
(1981-82)

Total number of districts with magnet schools = 138
Total number of magnet schools = 1,019

Number of ESAA-funded districts with magnets = 64
Number of non-ESAA-funded districts with magnets = 74

Number of magnet districts with enrollment of more than 20,000 = 91
Number of magnet districts with enrollment of fewer than 20,000 = 47

Regional Distribution of Urban Districts With Magnet Schools

	Number of Districts	Percent of Urban Districts
Southeast	24	32
Northeast	41	11
Southwest	14	13
Midwest	30	20
West	29	24
TOTAL	138	

Average Proportion of Students in a District Enrolled in Magnet Schools

	Mean	Range
Total district enrollment (N = 138 School Districts)	54,882	3,000 to 925,000
Total magnet schools enrollment	3,193	125 to 25,013
Percentage of total district enrollment	5.2%	1% to 37%
Percentage of total among districts with 3 or more magnet schools (N = 94 districts)	13.7%	3% to 37%
Total magnet enrollment among districts with 3 or more magnet schools (N = 94 districts)	6,350	550 to 25,013

SCOPE AND OBJECTIVES OF THE STUDY

Based on the widely varied local response to magnet schools, including many reports of program success and failure in both the mass media and the education research literature, as well as the federal support for magnet schools in the ESAA program, the Department of Education funded this national study in 1981 and awarded a contract to James H. Lowry & Associates, and a subcontractor, Abt Associates. The Department was interested in the study addressing the educational and desegregation impact of magnet schools as well as analyzing the process by which magnet schools are effectively developed in urban school districts. Specifically, they outlined four basic questions for which definitive answers were desired:

- How effective are magnet schools in providing quality education as measured by critical student characteristics and outcomes?
- How effective are magnet schools in assisting desegregation efforts?
- What factors contribute to a successful magnet school?
- What contributions do magnet schools make to meeting urban problems?

As the study has progressed, the importance of the analyses and findings on the effectiveness of magnet schools have increased due to the national attention being focused on public education. In light of the major questions and issues being raised concerning the apparent decline in the quality of education in our public schools, the Department of Education and the research team recognized that the study results would have significant implications for planning and consideration of methods for improving education quality.

The relevance of the study to urban education reform was reinforced by the discovery of our field teams that the degree of interest in, and commitment to, magnet schools at the local level is much higher than anticipated from existing research and reports. Some local school boards, administrators, teachers and parents are finding magnet schools to be valuable as an approach to revitalization and reform of their schools. If magnet schools are found to be effective educational and desegregative innovations, the concept would serve as a useful model in efforts to improve the effectiveness of public schools, and particularly with urban secondary schools.

MAJOR STUDY FINDINGS AND POLICY OPTIONS

Our analysis of the effectiveness of magnet schools as a model for education quality and desegregation innovation was directed toward answering five main research questions. We have outlined the major study findings related to each of these questions:

1. How effective are magnet schools in improving education quality in urban school districts?

   - Magnet schools can and do provide high quality education in urban school districts. One third of the magnet schools in our study have high education quality as measured by ratings of instructional quality, curriculum, student-teacher interaction, student learning opportunities, and use of resources.

- A majority of the other magnets in the study exhibited some elements of quality education processes. Virtually all offer important educational options and choices within their districts. However, there was wide variation in education quality across the total sample of magnet schools.

- High education quality in a magnet school is strongly related to three factors: 1) an innovative, entrepreneurial principal; 2) a high degree of coherence of the theme, curriculum, teaching methods and staff to form a strong program identity; and 3) special treatment by district administration with rules, conventions and procedures.

- Quality education in magnet schools does not require highly selective methods of student admission: high quality magnets serve average as well as high ability students.

- Eighty (80) percent of the 32 magnet schools in our study that reported achievement test scores have higher average scores than their district averages for the grade level. The magnets with the highest averages (top 15 percent) used more selective methods of admitting students.

2. What effect do magnet schools have on desegregation through the method of voluntary enrollment?

- Magnet schools have a significant positive impact on districtwide desegregation under certain district conditions, including strong policy commitment and effective implementation of a districtwide plan.

- Magnet schools helped reduce real and potential community conflict concerning desegregation in over half of the study districts.

- Positive racial integration is advanced within magnet schools: magnets with higher education quality show the greatest progress in developing an environment with positive interracial interaction and learning.

3. What is the importance of district and school leadership in producing effective magnet schools and programs?

- Magnet schools will not succeed unless there is strong district leadership including school board commitment to a magnet schools policy and involvement of the superintendent and key district administrators in implementing a district magnet plan. Educationally effective magnets continue to receive strong district leadership support after program implementation.
- Principals of effective magnet schools exhibit strong qualities of an educational "entrepreneur": a high degree of innovativeness in development of curriculum, resources and community involvement, as well as recruiting and motivating teachers and students who are committed to the magnet concept and theme.

4. How do the costs of magnet schools compare with costs for nonmagnet schools?

- The total cost per student in magnet schools is slightly higher than for nonmagnet schools, but the quality of education and racial integration in magnet schools are increased by the extra spending.
- The average total cost per student in magnet schools was approximately $200 more than nonmagnets in 1980-81, but the cost declined to only $59 more on average in 1981-82.
- The cost items accounting for slightly higher magnet costs are average salary per classroom teacher for secondary magnets and pupil transportation for elementary and secondary magnets.
- Magnet schools with specific, single themes, such as arts or science, have lower costs than combination magnets with two or more themes in a school.

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5. What part does community support and involvement have in developing effective magnet schools?

- Effective magnet schools generally have active community involvement in program planning, design, instruction, and support.
- Community participation in the initial planning and strategy for a magnet program tends to decrease opposition and lead to higher involvement during program implementation.
- Effective magnet schools can help increase community confidence in public education.

Policy Options

Based on the study findings, the research team has outlined several policy options that federal or state governments can consider in relation to the future of magnet school programs:

1. A program of grants to urban school districts that encourages establishing, developing and maintaining magnet schools as models of educational excellence and integration.
2. Information dissemination and assistance with magnet design and implementation would be an appropriate method of federal or state support for magnet schools and could be effective in assisting urban districts to develop high quality magnet education. Assistance would be particularly valuable for magnet schoools at the seccondary level.
3. To provide local flexibility in design of programs and use of funds, a federal or state magnet program should not be restrictive with unnecessary regulations.
4. To effectively contribute to urban education, federal or state support for magnet schools should be linked to district efforts to desegregate their schools.

CHAPTER II

RESEARCH DESIGN, METHODOLOGY AND DESCRIPTION OF STUDY SAMPLE

The basic design for the *Survey of Magnet Schools* was outlined by the Department in its request for a proposal in August, 1981. The study time-line, basic study approach, tasks, deliverables, and staffing levels were defined by the project officer and the Office of Program Evaluation. The study team was responsible for applying the general structure of the research design to the study objectives, issues, and questions, and for developing the detailed methodology, data collection instruments, field procedures, analysis plan, and report design. The research design and methodology is outlined as applied in carrying out the study purpose and objectives.

RESEARCH DESIGN

The research design was planned to be completed in two major phases during a two-year period: Phase 1 included design, instrument development, and pilot testing; Phase 2 consisted of the survey of school districts and their magnet schools, data analysis, and final report writing.

The "comparative case study methodology" was determined, by the Department and the study team, as best meeting study purposes, funding, varied research questions, and the unit of analysis (the magnet school). This methodology combines collection of quantitative and qualitative data from a representative sample of school districts (15) and magnet schools (45) by using a structured field guide. Data are collected by a study team of professionals using a common set of questions and items and are organized in a case report for each survey site. Comparative analyses were conducted with data and information contained in the site case reports.

Phases One and Two of the research design were divided into a series of study tasks and products. In completing the steps in the design, the project staff performed the following:

1. Reviewed magnet schools research literature and program designs; wrote paper on Issues and Approaches for the study(Lowry, 1982).

2. Formed Advisory Panel comprised of eight magnet school experts and met to review study design and issues.

3. Collected data on basic characteristics of magnet programs nationwide to serve as baseline population database and sampling frame.

4. Developed draft survey sampling plan.

5. Designed draft field guide and data collection procedures for pilot site visits.

6. Selected six school districts for pilot test of comparative case study methodology and conducted site visits.

7. Conducted analysis of pilot case studies.

8. Wrote Interim Report which included national data on magnet schools, pilot study findings, recommendations for survey methodology, and summary of research issues and questions for Phase 2(Fleming, Blank, et al, 1982).

9. Revised methodology, field guide, and procedures based on pilot findings; obtained FEDAC clearance.

10. Selected sample of 15 school districts according to plan to obtain nationally representative sample.

11. Conducted site visits and completed case studies of sample districts.

12. Analyzed data across sample sites using the comparative case study approach.

13. Met with advisory panel to review the findings and study recommendations.

14. Wrote final report.

These tasks and products were completed by the study team over two years and culminated in the 15-district survey and the final study report.

Research Issues

A key initial task of the research design was to identify the major research issues and problems presented by magnet schools that would lay the foundation for the ensuing research, data collection, analysis and findings. The research issues were defined by the Department's study objectives, our analysis of current issues, and the results of the pilot study.* The issues that shape the study are in five basic areas:

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* For a full description of the magnet schools research issues and the process used in the issues analysis, see Lowry, James H., Issues and Approaches for a Survey of Magnet Schools, U.S. Department of Education, January 1982.

1. How effective are magnet schools in improving education quality in urban school districts?
2. What effect do magnet schools have on desegregation through the method of voluntary enrollment?
3. How do the costs of magnet schools compare with costs for nonmagnet schools?
4. What is the importance of district and school leadership in producing effective magnet schools and programs?
5. What part does community support and involvement have in developing effective magnet schools?

Quality of Education:

- Does the special theme and curriculum of a magnet school have an important role in educational effectiveness?
- Do student outcomes from magnet schools compare favorably with other schools within a school district?
- Are selective methods of admission employed by magnet schools and do they affect student outcomes and the quality of education?
- Is the quality of magnet school staff, facilities and equipment an important factor in improving the quality of education? Does the organization, size and racial/ethnic composition of a magnet affect education quality?
- Can magnet schools have an effect on education quality in a district as an education model and as an incentive for teachers, students and parents to improve education?

Effects on Desegregation:

- Does the student racial/ethnic composition of magnet schools reflect districtwide composition?
- Can magnet schools improve districtwide desegregation?

- Does the location, reputation and identity of a magnet school affect its success as a voluntary means of desegregation?

- Do magnet schools generally offer equal access for all students in a district?

- Does a magnet school have positive racial integration and is integration related to improved education quality?

- Does a district's magnet school program reduce community conflict over desegregation and slow white flight?

Costs of Magnet Schools:

- Are some types and themes of magnet schools more costly than others?

- Are there specific cost items for a magnet school that produce a higher total per pupil cost as compared to nonmagnets?

- Do magnet schools have higher start-up costs which tend to level off as the program continues?

- If magnet schools involve extra costs, does the cost produce higher education quality and racial integration?

Leadership at District and School Levels:

- Do urban school districts' board members, superintendent, and top administrators have an important role in magnet success?

- Is magnet program success related to district leadership and support through the stages of program design, strategy, implementation and operation?

- Can magnet schools operate effectively with leadership and management from district staff, principals or teachers?

- Are there particular characteristics and qualities of an effective leader for magnet schools?

Community Involvement and Support:

- Is community involvement in public schools stimulated by a magnet school program?

- Are new types of involvement from the community created by magnets, such as linkages with the private sector, higher education institutions, cultural institutions and community organizations?

- Is high community involvement in magnet schools related to the quality of education and desegregation?

- Are local education problems related to the community's response to magnet schools? Can magnet schools improve community support and confidence in public education?

The research issues under these five major areas formed the basic structure of the methodology for data collection and the comparative analyses across the sample districts. The major study findings are outlined under these five major issues, and the sections and chapters of the final report correspond to these issues.

COMPARATIVE CASE METHODOLOGY

Our proposal to the U.S. Department of Education specified a "comparative case study methodology" for conducting the survey of magnet schools. This methodology was selected as the most appropriate for addressing the range of questions and interests of the Department, and it combines the collection of quantitative and qualitative data using a structured field interview guide. Data were collected by a team of three senior researchers spending one week in each district and using the field guide to answer a common set of questions across all sites. The researchers: a) conducted interviews with administrators, board members, principals, teachers, community leaders, parents, and students; b) collected quantified data on students, staff, and school costs, and c) observed magnet school operations and rated them on educational quality and racial integration.*

Following the Department's specifications for the scope of the study, we did not include any nonmagnet schools in the design for data collection or visit any nonmagnet schools. Thus, all comparative analyses are among magnet schools in the study or between magnets and district grade level averages.

The data from each site visit were organized in a case study report that provided the data base for comparative analyses of magnet schools across the 15 districts. Multivariate analyses employing standard statistical techniques were conducted with categorized and coded data on district, school, and student characteristics, and process analyses were conducted with qualitative data from interviews and field reports.

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* See Appendix I for a more detailed description of the methodology.

SAMPLING PROCEDURES

To identify the population of urban districts operating magnet schools for purposes of sampling, in January 1982 our research staff contacted the 275 school districts in the country with more than 20,000 students (since magnet schools are generally an urban school program), and 75 smaller urban districts that had applied for ESAA magnet funds from 1976-81. Using this procedure, we identified a total of 138 urban school districts and a total of over 1,000 magnet schools.*

The sample of 15 school districts for the survey was selected from this population using a stratified random selection procedure, using four district stratifying criteria: district size, number of magnet schools, racial composition, and region of the country. Table II.1 shows the characteristics of the district sample. (Pseudonyms are used to protect the confidentiality of selected sites.)

Each district selected for the survey had a minimum of three magnet schools to meet the methodological requirements for the site visits and at least one secondary magnet according to the Department's policy interest in secondary magnet schools. Table II.2 portrays the program themes of the sample of the 45 magnet schools in the study. In Table II.3, we have arrayed all the sample schools and key characteristics of each magnet school.

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*A summary of the data on the population of magnet schools in the U.S., based on our data collection, is contained in Appendix II.

SCHOOL DISTRICTS SELECTED FOR THE SURVEY SAMPLE

* * * * * * * * *

School District (by Region)	District Enrollment (1982-1983)	Racial Composition % White	Number of Magnet Schools		Total Magnet Enrollment
			Elem.	Sec.	
Northeast					
Foundry City	46,757	46	11	11	17,542
Old Port	17,154	21	0	3	537
Valley City	41,855	49	13	7	4,500
Southeast					
Steeltown	44,717	21	9	4	7,548
Midtown	107,221	23	9	11	6,000
Millville	31,375	49	1	2	1,121
Regional City	46,310	44	5	2	4,502
Midwest					
Clay City	96,311	71	0	3	5,932
Centerville	5,932	48	5	4	1,031
Rivertown	51,722	42	27	12	15,000
Sister City	31,276	69	3	2	2,586
Southwest					
Starville	29,141	55	1	3	3,075
West					
Paradise	22,531	26	2	2	3,038
Sunshine City	109,808	50	7	16	15,200
Evergreen	44,795	52	47	11	8,000

MAGNET SCHOOL THEMES BY TYPE OF SCHOOL PROGRAM

TYPE	Arts	Sciences	Social Studies	Occupations/ Careers	College Prep/ Academics	Alternative	Traditional	Combination	Other	TOTAL
Total-school	5	3	0	0	4	3	4	4[1]	2[3]	25
Part-school	2	1	2	1	6	0	0	4[2]	1[4]	17
Center	2	0	0	1	0	0	0	0	0	3
TOTAL	9	4	2	2	10	3	4	8	3	45

[1] Three with Academics and Arts; one with Academics and Career Education

[2] Two with Humanities and Arts; one with ROTC and Law/Public Service; one with Foreign Languages and Computers

[3] One with Physical Education; one with Marine Science and Ecology

[4] Mass Media Communications

An important factor in understanding the role of magnet schools in a local district is the community context, and in Exhibit I.1 of Appendix I we have briefly summarized the context of each of the districts visited in the survey.

9

Assistance from the Department of Education and Study Advisory Panel.

Throughout the design, planning and conduct of this multi-year, multi-phased study, the Lowry and Abt research teams worked very closely with officals of the Office of Planning, Budget and Evaluation at the Department of Education. Over the two-year period, they were extremely helpful in assisting the study effort and team in many ways, including:

- Identifying appropriate research and data collection methods,
- Obtaining access to federal records and information that contributed to the analyses,
- Working with state and local education officials to collect information and conduct the site visits,
- Completing the process of clearing the survey methods and instruments through the appropriate offices,
- Assisting with analysis of research issues and study findings, and
- Interacting with government officials and grantees responsible for other current education policy studies.

Although the findings of the study are the product of our data collection and analyses, we were greatly assisted by the Advisory Panel of magnet school experts and the officials of the Deparment of Education.

Table II.3

CHARACTERISTICS OF THE SAMPLE OF MAGNET SCHOOLS

District Magnet School	Theme	Student enrollment	Type	Grade level
Foundry City				
Dancer High	Performing Arts	853	total	5-12
Achiever High	"Acceleration/ Enrichment"	801	total	5-12
Tratel Secondary	Traditional	997	total	5-12
Old Port				
Arts Secondary	Creative Arts	262	part	5-8
Harbor High	Marine Crafts/ Environment Science	98	total	9-11
Trade High	Interdisciplinary Career Exploration	177	total	9-12
Valley City				
Creative High	Creative/Performing Arts	241	total	9-12
Lanier High	Computer Science	51	part	9-12
Peters High	JROTC	264	part	9-12
	Law and Public Service	28	part	9-12
Steeltown				
Dorsey High	Academics and the Arts	593	total	9-12
Forest High	Law and Government	943	part	9-12
Tolman High	Mathematics/Science	1,608	total	9-12
Midtown				
Advance High	College Prep	493	part	10-12
Outland High	College Prep	658	part	7-12
Plains High	Performing Arts	230	part	10-12

Table II.3
(2)

District Magnet School	Theme	Student enrollment	Type	Grade level
Millville				
Baines High	Health Professions	267	total	9-12
Donaldson	Fine Arts	310	total	5-9
Porter Elementary	Traditional	623	total	K-6
Regional City				
Little Secondary	Academic/Performing Arts	982	total	6-8
Marshland Elementary	Academic/Performing Arts	465	total	K-5
River High	Academic/Performing Arts	933	total	1-12
Clay City				
Elmore	Performing Arts	385	part	9-12
Greem	Alternative	550	total	9-12
Maxim	Traditional/Back to Basics	1,485	total	9-12
Centerville				
DiVinci Secondary	Creative/Performing Arts	141	center	9-12
Jackson Secondary	Basics/Math Science	151	part	7-8
Sunset High	College Prep	243	part	9-12
Rivertown				
Players High	Physical Education	940	total	4-12
Stage Secondary	Creative/Performing Arts	1,080	total	4-12
Wilson High	International Studies	258	part	10-12

Table II.3
(3)

District Magnet School	Theme	Student enrollment	Type	Grade level
Sister City				
Bethel Secondary	Foreign Languages	224	part	7-8
Dewey Elementary	Basic Skills/Applied Skills	1,012	total	K-6
Granite High	Performing Arts/ Others	700	part	10-12
Starville				
Larriat High	Academic/Honors	425	part	7-9
Lincoln High	Vocational Education	275	part	10-12
Lubbock High	Academic/Honors	476	part	10-12
Paradise				
Jefferson Elementary	Fundamental/Back to Basics	524	total	K-6
Patton Secondary	Fundamental/Back to Basics	1,605	total	7-12
Progressive	"Alternative"	230	total	K-12
Sunshine City				
Carpenter High	Science/Math/ Computers	625	part	7-12
Grable High	Creative/Performing Arts	1,142	total	4-12
Kenmore	Occupational Exploration	100	center	10-12
Evergreen				
Madison High	Humanities/Multi-Arts	420	part	9-12
Nathan High	Mass Communication	150	part	9-12
Open K-12	Alternative/Open	350	total	K-12

CHAPTER III

MAGNETS AND EDUCATIONAL QUALITY

INTRODUCTION

Magnet school programs have been designed and implemented in over 130 urban school districts with a major goal of making some improvement in the quality of education in district schools. We know that the number of students and schools involved in a magnet program vary widely--from less than a hundred students and only one magnet school to over 20,000 students and 75 schools. In Chapter II, we noted that the types of magnet themes are also extremely varied. But, a common thread running through all of the magnet programs and the district plans and efforts with these schools is to produce an innovation for quality education that will immediately improve the education of some students, and potentially improve public education for many more students if the magnet model is effective.

In conceptualizing this study, the Department of Education set out a major purpose of assessing the extent to which magnet schools do offer quality education. The magnet school concept has certainly grown to the point that this most basic question needs to be clearly answered for those district decision-makers administering, or planning, magnet programs, but in addition it is crucial for national, state and local government officials to be able to know if an investment in a magnet school innovation is a sound one. At this time of national discussion and debate concerning ways to improve the quality of public education in America's schools, an objective analysis of the effects of magnet schools on improving education quality is even more important.

Our analysis of magnet schools and education quality is designed to answer three basic questions:

1. How effective are magnet schools in providing quality education?
2. Are magnet schools selective in admitting students and thus serving only a select group of students?
3. What school characteristics or factors are related to an educationally effective magnet school?

These questions state the basic interests of educators, parents and government officials in knowing if and how magnets improve public education. Our analysis of the data from the survey of 15 school districts and 45 magnet schools has been directed toward these three questions. The analysis has also produced answers concerning several other questions concerning education in magnets which will be addressed under the chapter sections corresponding to the three major questions.

The analysis of educational quality has produced several major findings that will be elaborated and explained in this chapter:

- Magnet schools can and do provide quality education in urban school districts. One third of the magnet schools in our study have high education quality as measured by ratings of instructional quality, curriculum, student-teacher interaction, student learning opportunities, and use of other resources.

- A majority of the other magnets in the study exhibited some elements of quality education processes. Virtually all offer important educational options and choices within their districts. However, there was wide variation in education quality across the total sample.

- High education quality in a magnet school is strongly related to three factors: 1) an innovative, entrepreneurial principal; 2) a high degree of coherence of the theme, curriculum, teaching methods and staff to form a strong program identity; and 3) special treatment by district administration with rules, conventions and procedures.

- Quality education in magnet schools does not require highly selective methods of student admission: high quality magnets serve average as well as high ability students.

- Eighty (80) percent of the 32 magnet schools in our study that reported achievement test scores have higher average scores than their district averages for the grade level. The magnets with the highest averages (top 15 percent) used more selective methods of admitting students.

In the first section of this chapter, we explain our approach to measuring education quality in magnets and present our findings on quality across the study sample. The second section is an analysis of the degree of selectivity in admitting students to magnet schools and what effect selectivity has on quality. And, third, we present our analysis of the major factors in an educationally effective magnet and describe the importance of these factors.

MAGNET SCHOOLS OFFER EDUCATIONAL QUALITY

Before we could analyze the extent to which magnets have quality education, an operational definition of quality had to be developed and we had to develop specific measures that would be valid and applicable to the study.

Defining Education Quality in Magnet Schools

For the purposes of this study, educational quality has an empirically more precise and limited meaning than either its popular connotation or its usage as a professional "term of art" signifies. In this context, educational quality connects with a growing literature on "effective" schools; a large body of research on innovation and school improvement; an even larger knowledge base on learning, curriculum, and instruction; and, perhaps most important of all, the everyday language and experience of local educators as they grapple with the problems of providing educational services to highly diverse student populations.*

We use the phrase, educational quality, to refer empirically to two facets of the educational environment: (1) selected educational processes that occur daily among teachers, students, and administrators in schools and are observable either directly or through the traces they leave in classrooms, hallways, cafeterias and playgrounds, and (2) one subset of student outcomes, specifically, reading and math achievement test scores.

Measures of Education Quality for Magnet Schools

For many reasons, test scores have severely limited utility as measures of educational effectiveness or educational quality. Some of their limitations are inherent in measurement theory and practice; others have to do with the fact that there are a variety of student outcomes to be considered; and others revolve around the fact that, as outcomes, test scores are particularly and dangerously sensitive to prior inputs, regardless of the intervening process.* However, we have included this measure to provide comparability of magnet outcomes with district averages and to provide a broader perspective on outcomes from magnets.

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*The RFP and design approved by the Department of Education for this study specifically prohibited this survey from becoming a study of educational quality in general, or even of educational quality in magnets compared with educational quality in regular schools.

Our primary emphasis is on the first measure, the educational processes of magnet schools, for two reasons. First, our major conceptual interest is in the interaction process, or what happens "inside the black box," for it is in this process that learning occurs. Second, it is this process that lies at the center of all efforts at improvement, and where the magnet's theme-based curriculum and voluntary interest are claimed to have impact and effectiveness.

The particular educational processes that we have focused on are specified in our Quality Education (or QED) scale, which is presented and fully described in Appendix III. Five main processes are included:

1. Activity Rate
2. Interaction Rate
3. Sentiment Rate
4. Congruence of Tasks with Mission
5. Extent of Realized Resources

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[*] See our Interim Report (Fleming, Blank, et al, 1982) for a more detailed discussion of these issues.

1. Activity Rate is a measure of the extent to which students are "on-task" in the classroom and throughout the school day, as well as the degree of teaching activity and effort of teachers. We rated the students course load and difficulty, involvement in extracurricular activities and availability of events and special activities open to students, as well as the proportion of faculty that spend extra time with students after regular hours.

2. Interaction Rate is an observed measure of the degree of student-student and staff-student dialogue and discussion related to educational matters. We also rated the degree to which faculty and administrators interact during the day to discuss program-related subjects, and finally we determined the extent of parents and other volunteers' assistance with the daily school activities.

3. Sentiment Rate is a rating of availability and opportunity for students to receive help and assistance with their studies, how much students are recognized for improvement or outstanding effort, and students' expressed attitudes about the school. In other words, this measure gives a rating of whether the school goes over and above the daily routine to make the magent a special place where students can learn well and enjoy learning.

4. Congruence of Tasks and Mission is the assessment of how successful the magnet school is at meeting its stated goals and objectives. For example, if the magnet is designed to offer a unique arts program, are there available facilities, studios and supplies

and do students get to adequately try out the arts instruction they receive? Also, a component of this rating is whether the school's reputation is consistent with its intent, e.g. if the theme is science and math, do students receive a unique and special science and math curriculum and training in science not available elsewhere?

5. Extent of Realized Resources is a rating of how well the magnet administrators and staff have utilized their unique opportunity and creativity to develop an identifiably unique program. We rated their use of ingenuity in using space, how much effort was placed on seeking resources and support from the district-level and the community, and how supportive the magnet staff is for varying routines and creating new learning opportunities outside of standard grades, time schedules, or procedures.

This set of five ratings and sub-measures of the Quality Education scale (QED) established the dimensions for determining a magnet with high education quality, and, in fact, a high quality education in any school. We did include rating items and measures that would capture the elements of quality that previous studies and reports on magnets indicated were a benefit of this innovation, and made it a quality education approach. In using these rating scales, our staff set high standards for assessing the magnet schools we studied, and thus we could be sure that a school receiving a high rating (10 of 10) on all five items in each of the five scales would truly be an outstanding school by virtually any measure. By summing the ratings across all five scales, we would be able to identify the magnet schools that are outstanding examples of magnet educational effectiveness.

We selected these five processes as key for three reasons. First, they are constructs which appear repeatedly in the growing literature on effective schools (e.g., Congruence), on long-standing sociological literature on effective organizations (e.g., Realized Resources), and in the teaching and learning literature (e.g., Activity Rate). Second, they come up repeatedly in conversations with educators about educational quality. For instance, when asked in conversation, "What is a good school?", teachers, administrators, and educational policy makers will often unhesitatingly reply, "One where children and staff are active and busy and focused on learning." Third, these processes emerged in our pilot study as self-determined points of intervention of districts and schools pursuing educational improvement. And, this was consistent with our experience in several other studies.

In total, we have used three measures of educational quality: (1) the QED Scale, which is made up of five subscales based on observations of the behaviors and activities of magnet staff and students; (2) the Reading Achievement Scale, which compares the average reading score of each magnet with the average reading scores of the district; and (3) the Math Achievement Scale, which does the same for mathematics. In short, the QED scale measures the "quality" of the educational process. The Reading and Math Achievement Scales measure how each magnet's academic achievement compares to its own district average.*

Magnet Schools with High Education Quality

Our analysis of the magnet schools in our study show that approximately one-third of the schools exhibit high education quality as measured on the quality education ratings, or QED scale. The distribution of QED scores in Table III.1 shows that 15 magnets attained scores over the 75 percent level (out of a possible 100). This group possesses all the characteristics of a quality school, scoring high on all five of our ratings, and can be considered outstanding quality models.

A magnet of high educational quality that attains this level of rating could be characterized as: a) a magnet where the students and staff are active, in class and out; b) the administrators, teachers, and students interact and communicate regularly with one another on education matters, and not just in the classroom; c) staff and students share and express a sense of community; d) daily activities are consistent with the stated goals and aims of the program; and e) resources, both symbolic and material, are fully utilized. These magnet schools not only stand out in an objective rating. In field visits, they can be clearly recognized as

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* The QED is presented in detail in Appendix III, Notes on the Quality Education Scale. The Reading and Math Achievement Scales are also described in Appendi III, List of School Variables.

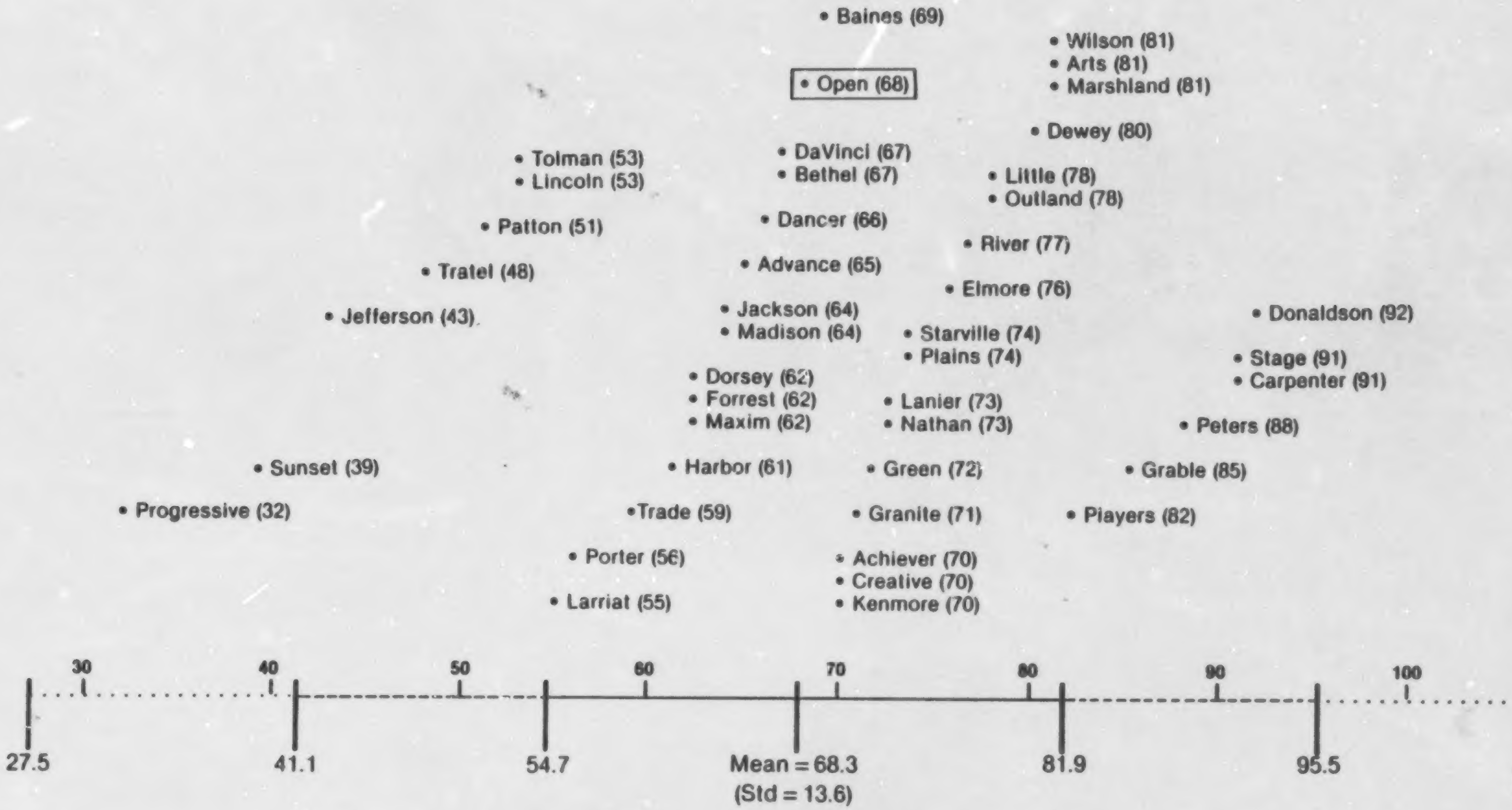

Table III. 1 Distribution of Magnet QED Scores having assembled all of the ingredients for an outstanding school, but in addition show the unique identity and theme provided by the magnet designation.

On the reading achievement scale (Table III.2), over 80 percent of the magnets in the study equaled or exceeded the average for their districts.* But, 44 percent exceeded their district average by 10 or more points, and seven outstrip it by at least 30 points. Thus, a significant proportion of magnets showed high quality in student reading scores.

The math achievement scale (Table III.3) also indicates that magnet students typically do very well in comparison to district averages, and that high quality magnets are far ahead of the district. Forty-one (41) percent of the magnets in our study exceeded district averages for grade level by 10 points or better and six magnets were over the district averages by 30 points or more.

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*Academic achievement data were available for 32 of the sampled magnets. In addition, these 32 schools (in 11 districts) varied greatly in both the particular test administered and the metric reported. For instance, five districts used the California Achievement Test; three, the California Test of Basic Skills; one, the Science Research Associates Cognitive Tests; and one, the California Test of Basic Skills for Secondary Grades and the California Achievement Test for elementary. Similarly, seven districts reported scores in percentiles; one, in terms of the percent of students performing above national norms; and three, in grade equivalents. As specified in Appendix III, our academic achievement scale does not attempt to equate these various tests or metrics. Rather, the scale is simply the raw difference between the district average and the magnet score for the representative grade levels tested by the district. (High Schools were tested at grades 10 or 11; intermediates at grades 6 or 8; and elementaries at grade 4.) In sum, our scale serves as a rough benchmark of comparative achievement.

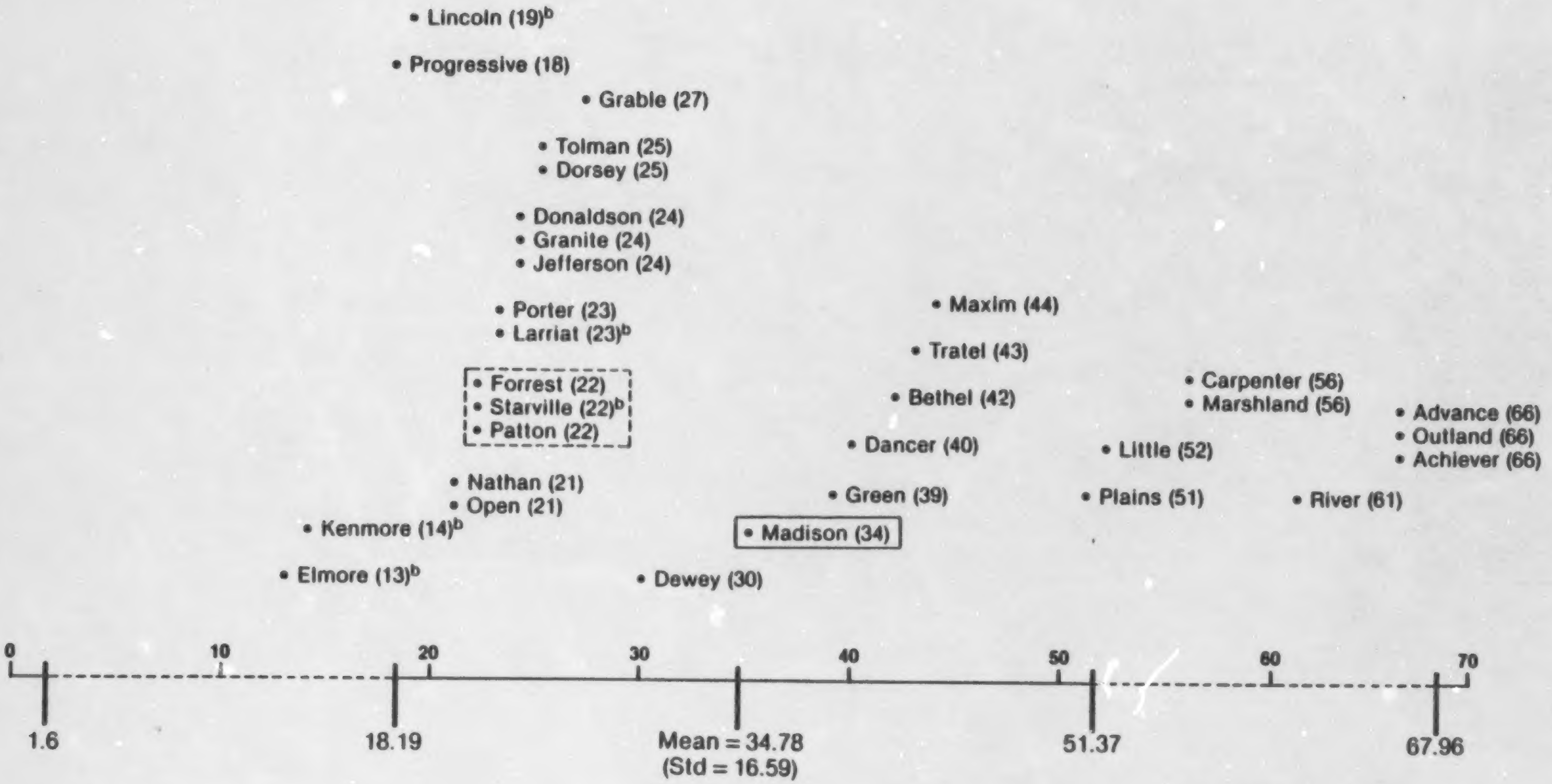

Table III.2 Distribution of Reading Achievement Scale Scores[a]

(A score of 22 means that reading achievement *equals* the district average;
a score of less than 22 means that reading achievement is *below* the district average.)

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[a] Data were not available for those 13 magnets not shown.

[b] Magnet program scores were not available. The reported score is for the entire school. Hence, caution must be used in interpreting this score, for the magnet program may serve only a small portion of the school's students.

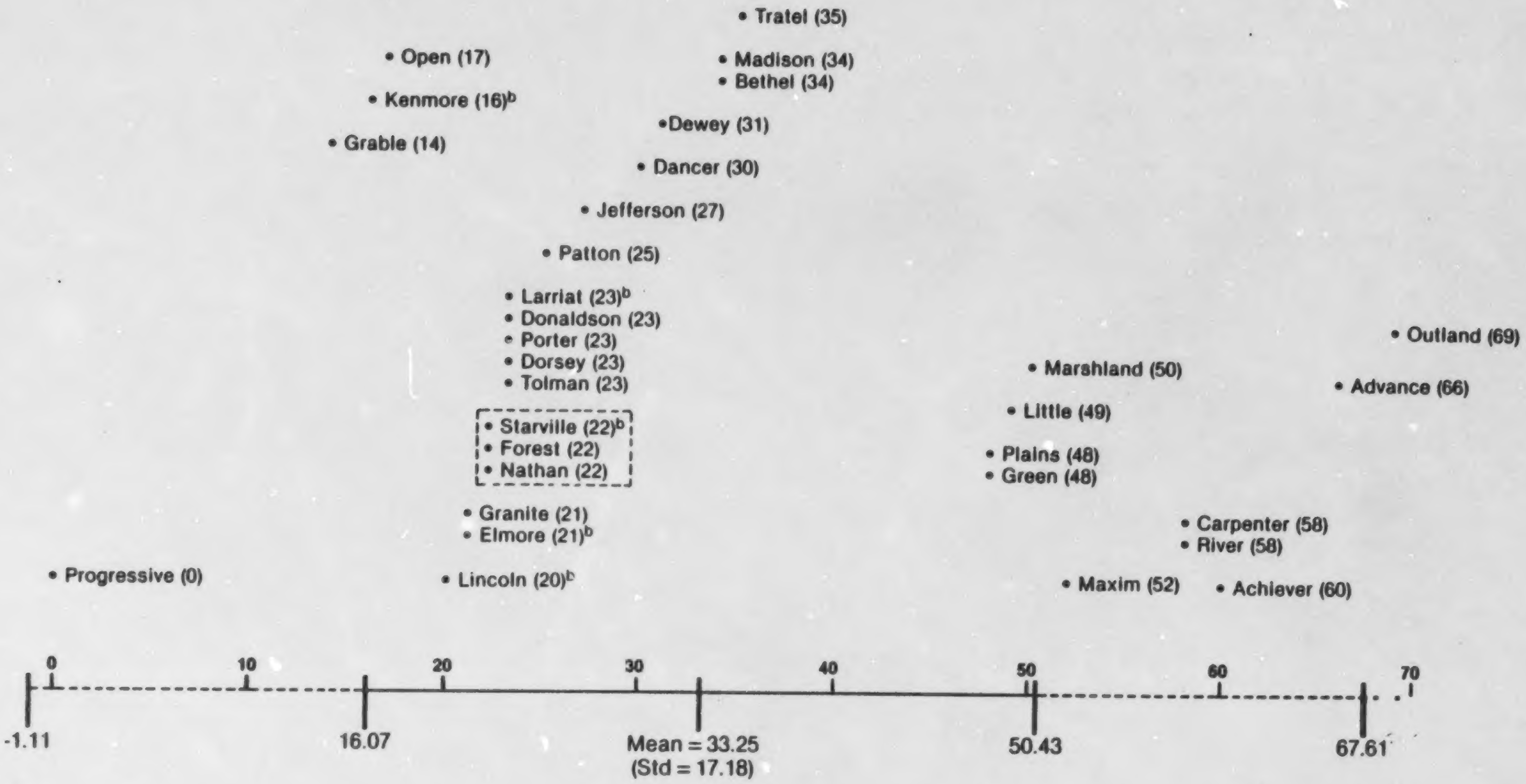

Table III. 3 Distribution of Math Achievement Scale Scores[a]

(A score of 22 means that math achievement *equals* the district average;
a score of less than 22 means that math achievement is *below* the district average.)

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[a] Data were not available for those 13 magnets not shown.

[b] Magnet program scores were not available. The reported score is for the entire school. Hence, caution must be used in interpreting this score, for the magnet program may serve only a small portion of the school's students.

Thus, according to our three measures of education quality, the process quality ratings (QED), the reading scale, and the mathematics scale, at least one-third of the magnet schools are producing high quality education. Some magnets do very well on the reading or math scales but do not have as high scores on our quality ratings and some scored higher on the process ratings. But, in sum, we find that across the three scales, there is a core group of one-third of the magnets that provide high education quality. In our estimation, these magnets would stand out as high quality schools on any rating of public schools.

To completely analyze education quality in magnets, however, we must also consider the extent of quality across the total range of schools in our study.

Variation in Education Quality

Our ratings of education quality in school processes (QED) indicated that a majority of magnets were grouped around the study mean. Fifty-six (56) percent of the magnet schools had QED scores within 10 points of the mean score (68.3) for all 45 magnet schools. This finding indicates that these schools had a combination of some quality educational processes and characteristics and some that were weaker. However, based on our rating standards, a school at the mean certainly shows evidence of offering a quality education.

A magnet school in this middle range of quality might have students, faculty, and staff that interact well and often, and have creative and appropriate uses made of available space, materials and equipment. But, in comparison to high quality magnets, fewer students might be "on task" in the classroom; there might be less congruence between the goals of the school and the activities of students and staff; or less provision might be made for recognizing student performance.

Our study sample magnet schools had wide variation in the reading and mathematics scales, even though a majority were over district averages. Approximately 35 percent of the schools were very close to district averages on achievement test scores, and about 10 percent were below district averages. If we look at the sample schools below the one-third of high quality, or "super academic achievers," it can be noted that the rest of the sample is within one standard deviation from the mean on the reading and math scales.

An important question related to the degree of variation in education quality among magnets is how magnets in the middle range of quality compare to regular, nonmagnet schools. Since this study's design excluded non-magnet schools, it is impossible to do more than speculate about how magnets might compare to regular schools in terms of quality of education. However, based on our experience in studying and visiting schools for other studies, and in comparison with the frequently cited characteristics of "effective schools"

(Rowan, 1983; Clark, Lotto & McCarthy, 1980; Edmonds, 1979),* it is our view that the magnet schools clustered around the mean on our ratings of quality (56 percent of the sample) would compare favorably with good regular schools. Most of these magnets possess characteristics of effective schools, but like most regular schools have some weaknesses. (The high quality magnets would rate high on all the indicators of effective schools.)

All magnets partake of certain general definitions and standards of quality that are rooted in the traditions and heritage of American public education. Regular public schools vary enormously in educational quality from district to district, from school to school within the district, and even from classroom to classroom within a school. Whatever their successes or shortcomings, however, they are grounded in a broad ideal of quality as a search for the best means of providing free public education for all. Most magnets tend to emphasize "above average" learning outcomes as those are estimated locally, as is true of some non-magnet schools in the same districts.

The range of school QED scores within the sampled districts varied considerably, as shown in Table III.4, which is similar to the wide variation among regular schools. But, range appears

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* The main school-level characteristics of effective schools most often cited are: a) school climate conducive to learning, i.e. low discipline problems and high expectations, b) school-wide emphasis on basic skills, c) a system of instructional objectives, and d) a strong principal who is a programmatic leader and creates incentives for high performance.

Table III.4

Range of QED Scores Within Districts

District	District QED Score	Minimum/Maximum Magnet QED Scores	Range (Mean = 17)
Rivertown	84	81-91	10
Sunshine City	82	70-91	21
Regional City	78	77-81	4
Valley City	76	70-88	18
Millville	72	56-92	36
Midtown	72	65-78	13
Sister City	72	67-80	13
Clay City	70	62-76	14
Evergreen	68	64-73	9
Old Port	67	59-81	22
Foundry City	61	48-70	22
Starville	61	53-74	21
Steeltown	59	53-62	9
Centerville	56	39-67	28
Paradise	42	32-51	19

unrelated to quality: four of the six highest rated individual magnets are in districts with wide score variation. Only two districts of the top seven on average magnet education quality have low variation in quality.

Part of the variation in quality is related to mixed objectives and commitment of school districts to magnets. Only four districts in our study--Foundry City, Sister City, Evergreen, and Rivertown--are using magnets as major tools in a systemic drive for reform and revitalization of educational quality. Although originally developed in response to externally imposed desegregation imperatives, magnets in these districts now play a key role as examples of the possible, as illustrations that higher levels of educational quality (and quality integration) are indeed achievable in the local context. Yet, even in these sites, staff point out that while the magnets are special and have a key role to play in achieving the larger aims and goals of the system, there are many good regular schools and many ways of improving a school other than converting it into a magnet.

Diversity in Education

The specialness of magnets lies not in one quality education model but in offering a diversity of types of quality education. Some magnets diversify around academic distinctiveness. Some magnets specialize explicitly in generating very high student achievement test scores across general academic subjects. Others specialize in high achievement in one subject area, such as science. Most specialize around a theme but strive to offer excellent instruction not only in that field but in all subjects offered. Still others diversify around considerations that deemphasize high test scores in favor of other aims and goals.

One clear method by which magnets offer education quality is through a diversity of types of education by creating different theme-based curricula. The 45 magnet schools in our sample used five basic curricula, as shown in Table III.5:

1. Arts -- 10 schools;
2. Sciences (including math and computers) -- 3 schools;
3. Social Studies (including law, international studies, foreign languages) -- 2 schools;
4. Occupations (including health, industrial) -- 3 schools;
5. General academic emphasis (including college preparatory/ honors courses, traditional and fundamental schools, and alternative schools) -- 17 schools.

Eight of the magnets used some conbination of themes, chiefly general academic combined with the arts. Only two of the 45 departed from these curricular themes. One of these has a marine sciences and ecology theme; the other, a physical education theme.

Another way that magnet schools offer educational diversity in public education is in their method of organization. First, magnets offer different ways to structure the grouping of students and staff in a building. Magnets in our sample are organized in three ways:

1. Full-time or "total-school" magnets, where the entire school is focused on the magnet theme and all students and teachers are engaged in the business of "having a magnet";

Table III.5

Basic Curricula Used in Magnets

District	Arts	Sciences	Social Studies	Occupations	General Academic Emphasis	Combination	Other
Sunshine City	Grable High	Carpenter High		Kenmore			
Midtown	Plains High				Advance High Outland High		
Clay City	Elmore High				Green Maxim High		
Rivertown	Stage Secondary		Wilson High				Players High
Foundry City	Dancer High				Achiever High Tratel Secondary		
Regional City						River High[1] Little Secondary Marshland Elementary	
Evergreen	Nathan High				Open K-12	Madison High[2]	
Steeltown		Tolman High	Forest High		Dorsey High		
Valley City	Creative High	Lanier High				Peters High[3]	
Millville	Donaldson Secondary			Baines High	Porter Elementary		
Sister City					Dewey Elementary	Granite High[4] Bethel Secondary	
Starville				Lincoln High	Larriat Secondary Starville High		
Paradise					Progressive Patton Secondary Jeffermann Elementary		
Old Port	Arts Secondary					Trade High[5]	Harbor High
Centerville	DaVinci Secondary				Jackson Secondary Sunset High		

[1] All three Regional City magnets are General Academic Emphasis/Arts combinations.

[2] Madison High offers a combination of a humanities program and a multi-arts program.

[3] Peters High offers a combination of an Army ROTC magnet program and a Law and Public Service magnet program.

[4] Granite High mounts a variety of magnet themes, the primary ones being performing arts and humanities. Bethel Secondary offers a combination of foreign languages and a computer program.

[5] Combination of General Academic Emphasis and Career Education.

2. Full-time magnet programs within a regular school, where a portion of the school's teachers and pupils are fully engaged with magnet offerings and the remainder of the school population carries on with "regular" instruction;

3. Part-time magnet programs within a regular school, where magnet participants devote part of their time and energies to the magnet offerings and the remainder to "regular" instructions. In this model, students may commute to the magnet from their home schools for part of the day, or they may attend the school that houses the magnet as their home school and spend part of their day on magnet courses and part on regular courses. Teachers may teach both regular and magnet courses, or they may concentrate wholly on the latter.

As Table III.6 shows, the majority (60 percent) of our sample are full-time or total-school magnets.

The decision to develop a part- or full-time magnet program instead of a total-school magnet appears to be unrelated to thematic considerations. The different magnet program organizational models are applied across every major theme. The organizational decision is rather a function of district/school needs, resources, and goals. For example, a part-school program is often created to: (1) contribute to desegregation; (2) "save" underenrolled schools; and (3) provide advanced academic opportunities for parents and children who desire them. Districts often choose to meet these demands by creating magnet opportunities, or programs, within existing schools and with existing resources.

A second way that magnets offer educational diversity in organization is by innovating with the organization of grades. While 32 of the 41 secondary schools are organized in conventional secondary fashion -- middle/junior high (six schools), senior high (22 schools),

Table III.6

Program Structure

District	"Total-School" Magnet	Full-time Magnet Program Within a School	Part-time Magnet Program Within a School
Sunshine City	Carpenter High Grable High		Kenmore
Midtown		Advance High Plains High Outland High	
Clay City	Green Maxim High	Elmore	
Rivertown	Stage Secondary Players High	Wilson High	
Foundry City	Dancer High Achiever High Tratel Secondary		
Regional City	Marshland Elementary Little Secondary River High		
Evergreen	Open K-12		Madison High Nathan High
Steeltown	Tolman High Dorsey High Forest High		

Table III.6

Program Structure

(continued)

District	"Total-School" Magnet	Full-time Magnet Program Within a School	Part-time Magnet Program Within a School
Valley City	Creative High		Lanier High Peters High
Millville	Baines High Porter Elementary Donaldson Secondary		
Sister City	Dewey Elementary		Granite High Bethel Secondary
Starville			Starville High Lincoln High Larriat Secondary
Paradise	Progressive Patton Secondary Jefferson Elementary		
Old Port	Trade High Harbor High	Arts Secondary	
Centerville	DaVinci Secondary	Sunset High	Jackson Secondary

or junior-senior high (four schools) -- nine serve both elementary and secondary students.

Innovative grade groupings are typically more related to marketing concerns than to any inherent feature of theme facilities. For instance, one district chose to use the 5-12 grouping as a deliberate strategy to attract students at an early age and hold them through the high school years, a time when many students are reluctant to abandon the social loyalties and ties associated with their home high schools that host friends and siblings. By enrolling the students at an early age, when these ties are far less strong, school planners built in a high school constituency as the children moved through the grades.

The descriptions of quality magnet schools contained in Appendices III and VII, provide documentation from the study sites of the degree to which magnet schools offer quality through diversity of types of education.

In sum, our analysis shows that one-third of the magnets demonstrated high education quality that make them outstanding examples of models for public education. A majority of the other magnet schools exhibit some quality education characteristics that make them comparable to good regular schools. Finally, magnet schools in general provide quality in a district through offering a method of innovation and diversity in theme and organization of education.

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QUALITY EDUCATION IN MAGNET SCHOOLS DOES NOT REQUIRE HIGH SELECTIVITY

The question of selectivity has haunted magnet schools from their inception, clouding attempts to assess their effectiveness and policy debates about their place in public education. Critics have charged that magnets are little more than privatized enclaves for top students, and that magnet "success" is in truth academic elitism, exercised to the exclusion and neglect of the average student. Advocates have countered that this is not the case, that magnets are simply a means of offering specialized educational opportunities to all interested students--regardless of "ability"--and that average (or even troubled) students are by no means excluded or neglected. The selectivity issue becomes even more clouded when the debate focuses on the precise meaning of selectivity: Is it student self-selection by the means of voluntary enrollment? Is it applicant screening as practiced by private preparatory academies or public examination schools such as the Bronx High School of Science or Boston Latin?

Our field work for this study reveals that the selectivity issue is more complex and subtle than either side has grasped. In fact, there are four types of selectivity practiced among the magnet schools in our study: (1) student self-selection, which is inherent in the magnet concept; (2) market focus, which is expressed in the ways in which magnets are marketed to the community and consumers; (3) applicant screening, which may include both behavioral and academic standards for admission; and (4) post-entry mechanisms for transferring students who do not perform or behave in accordance with the magnet's standards. Magnets can and do exercise these four types of selectivity in varying ways and combinations, to varying degrees, and with varying consequences for educational quality.

Self-Selection

Students self-select into all 45 of our sampled magnets. Nowhere were students assigned involuntarily to magnets as a matter of district policy. Teachers and school level staff we interviewed --even those in the most highly selective, "exam" magnets--reported that the students who self-selected into their magnets were often "very average" in terms of academic ability. As one principal of a highly selective magnet said: "Thank God they're not all geniuses! We could not stand that." However, teachers and school staff also emphasized that their students were different in one important respect: they *wanted* to be in the magnet. Our school level respondents repeatedly asserted that this desire makes a difference in the learning environment. As one teacher said: "I can *teach* here. I don't have to worry about motivating (and disciplining) students."

Marketing

Student self-selection is related in part to the second type of selectivity practiced by magnets: the way the school is marketed. In essence, students and parents are drawn to a magnet school or program in response to the way that it is presented to them.

If the magnet is presented as a non-selective, welcoming place, open to and encouraging of all who are simply interested in the theme, a wide range of students will likely apply. If the magnet is presented as a rigorous, highly selective enterprise, the range will likely narrow considerably. These marketing images operate independently of whether or not the magnet has stringent admissions criteria. Further, they may be reinforced by recruitment strategies.

To most educators, policy makers, and consumers, the essence of the selectivity issue is expressed by the third and fourth types of selectivity that we observed in our sampled districts: (3) applicant screening; and (4) transferring students who fail to live up to the magnet's standards after being admitted. In other words, the most basic question is: Do magnets characteristically compose their student bodies to avoid dealing with difficult or just average students, even if they wish to attend?

To answer this question, we devised a selectivity index and coded each of the 45 sampled magnets. The index is composed of three parts, as described in Appendix III, Exhibit III.2. Briefly, the index defines a highly selective magnet as one that (a) relies substantially on some combination of grades, test scores, teacher/guidance counselor recommendations, behavior assessments, and even interviews with applicants and their parents in order to screen students for admission; (b) remands or sends students back to their regular school if they fail to maintain academic performance and behavior standards while in the magnet; and (c) does not host students at the lower end of the special needs spectrum. (It may host special needs students classified as gifted and talented.)

A non-selective magnet is defined as one that: (a) admits students on a first-come, first-served basis or by means of a lottery, with no consideration of anything but interest in the theme; (b) does not remand students for any reason; and (c) hosts lower-spectrum special needs students (e.g., learning disabled, emotionally disturbed). The index gives three times as much weight to substantial reliance on admissions screening as to remanding/not remanding and hosting/ excluding certain special needs categories.*

The distribution of selectivity index scores for the sampled magnets is shown in Table III.7. As these data show, at the grossest level, the question is answered in the affirmative: Magnets are selective. That is, most (89 percent) do compose their student bodies to screen out certain types of students. However, on closer inspection, this generalization--like many others about magnets--quickly breaks open to reveal a more complex picture.

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* Among those magnets that make use of formal admissions criteria, there is great variation in both the elements included and the stringency with which they are applied. Some use all the items mentioned above, codified into a strictly applied formula with rigorous cut-off scores for each element and the total score. Others use only grades and/or standardized test scores, and scan less for a rigid cut-off than for evidence that applicants can perform at the level of instruction/curriculum offered. The index does not reflect these gradations.

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Key
15 = Highly selective
12 = Very selective
9 = Moderately selective
6 = Somewhat selective
3 = Non-selective

- Kenmore (3)
- Bethel (3)
- Dewey (3)
- Starville (3)
- Arts (3)

- Jefferson (6)
- Grable (6)
- Elmore (6)
- Dancer (6)
- Tratel (6)
- Nathan (6)
- Tolman (6)
- Forest (6)
- Granite (6)
- Lincoln (6)
- Patton (6)

- Carpenter (9)
- Advance (9)
- Plains (9)
- Outland (9)
- Stage (9)
- Players (9)
- Madison (9)
- Open (9)
- Lanier (9)
- Peters (9)
- Creative (9)
- Porter (9)
- Progressive (9)
- Harbor (9)
- DaVinci (9)
- Jackson (9)

- Maxim (12)
- Dorsey (12)
- Baines (12)
- Donaldson (12)
- Larriat (12)
- Trade (12)
- Sunset (12)

- Green (15)
- Wilson (15)
- Achiever (15)
- Marshland (15)
- Little (15)
- River (15)

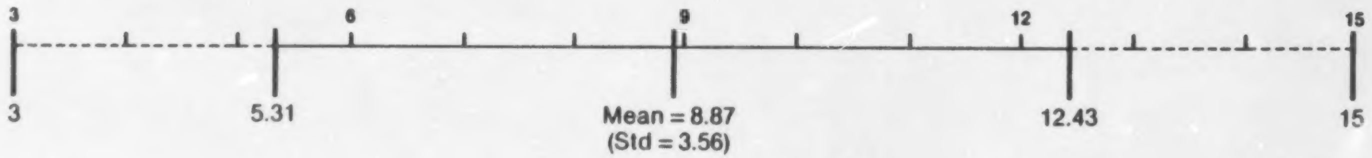

Table III.7 Distribution of Selectivity Scores

First, most magnets (60 percent) are only somewhat to moderately selective. While they rely on some combination of grades and scores to screen applicants, most do so in a rather relaxed fashion. Their characteristic criteria for admissions are: (1) academic performance at grade level; and (2) no immediately apparent evidence of serious social or behavior problems (e.g., poor attendance, frequent disciplinary actions).

Hence, while most magnets are screening out the most problematic students--e.g., the educationally disadvantaged, the serious social and behavior problems--they do not appear to be rejecting the average student. In fact, their main screening criterion is interest in the theme. Most of these mildly to moderately selective magnets also host the lower-spectrum special needs students (although they may mainstream minimally if at all), and most do not remand students. (However, a number of principals spoke of counseling students to voluntarily transfer if they were having severe difficulties adapting to or academically succeeding in the magnet.)

Second, only a very small proportion of the sampled magnets are either highly selective (13 percent) or non-selective (11 percent). This suggests that the extremes of the selectivity debate--i.e., magnets are elitist enclaves for only top students versus magnets are thematic programs open to all regardless of ability--are indeed extremes. Some magnets focus on the "top" students, although whether or not this is elitist may be a matter of one's perspective.

Some magnets are so non-selective as to be virtually open admissions schools, although student self-selectivity and marketing focus may blunt the openness to at least some degree. But most (75 percent) of our sample lies somewhere between these two extremes on a spectrum that appears to be skewed towards a lesser degree of selectivity than suggested by our pilot study or by many critics of magnet schools.

Selectivity and Educational Quality

Our analysis of the relationship of the selectivity index to our measures of education quality show that selectivity is not related to the QED scale, but it is moderately associated with higher reading and math achievement scores.

The correlation matrix (Appendix III, Exhibit III.2) shows that selectivity is not significantly correlated with QED, meaning that magnet schools that we rated as having high quality education did not have any particular degree of selectivity, i.e. quality magnets have both average students and higher ability students. Also, in comparing the QED distribution (Table III.1) and the Selectivity Index (Table III.7), we can see that while all six of the highly selective magnets do have above-average QED scores, 46 percent of all the other magnets also have above-average QED scores. Quality education within a magnet school does not require higher ability students.

Selectivity is, however, associated with the extent to which magnets outstrip their district averages in reading and math (r = .52 in both cases). This suggests that high selectivity of students yields high educational quality in terms of test scores. When directly tested, this relationship holds for the highest level of selectivity (as shown in Appendix III, Exhibit III.4). However, when we extend the argument to include very selective as well as highly selective magnets, the relationship is lower. This means that all of the more selective magnets are not the highest achieving schools. Even more importantly, the magnets with the highest academic achievement are not highly selective. In fact, half of them -- Carpenter, Advance, and Outland -- are only moderately selective.*

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* Selectivity is not as strongly related to magnet theme as might be expected from reviewing the various types of themes. The correlation coefficient between type of theme and the selectivity index was not strong enought to be included in our correlation matrix of school variables (Appendix III, Exhibit III.2), and inspection of Table III.7 reveals the reason. On the one hand, there is some relationship between theme and selectivity: most of the highly selective magnets are General Academic Emphasis theme, or some combination theme that has a heavy academic thrust. However, most of the General Academic Emphasis themes are no more than moderately selective. Further, the other themes are sprinkled throughout the selectivity levels.

In other words, it is possible to mount an academically oriented magnet without relying on rigorously selective admissions criteria. For example, Carpenter, a Science magnet, is only moderately selective in comparison with some of the others in our sample. Arts in Old Port is possibly the most non-selective magnet in the sample. It ranks applicants into three academic categories--high, medium, low--and systematically admits all three groups. And, as one Arts respondent said: "We take our share of behavior problems to avoid bad feelings from other schools."

In sum, the highest level of student selectivity will probably guarantee high educational quality in terms of academic achievement scores. However, it will not guarantee high educational quality in terms of certain important educational processes. Further, at anything less than the very highest level of selectivity, the relationship breaks down. Overall, then, we conclude that selectivity alone is not sufficient to produce quality education, even when educational quality is defined solely in terms of academic achievement scores.

MAGNET SCHOOL CHARACTERISTICS RELATED TO EDUCATION QUALITY

Our analysis presentation thus far has shown that education quality can be effectively provided by magnet schools, and we found that student selectivity is not a necessary ingredient for magnet quality. Now, we turn to the third major quality question of examining the factors in a magnet school that are most important in producing education quality.

The analysis of school factors that are related to magnet education quality included several types of variables for which data were collected in the 15 study districts and 45 magnet schools. These variables included demographic factors, such as school size, pupil/staff ratio, years as magnet, student racial/ethnic composition, number of specially-selected magnet staff, and staff racial/ethnic composition. Second, we collected data on a number of "treatment factors" or factors specifying how the school is organized and education delivered, including program type (part-school vs. total-school), theme, principal quality, facilities, curriculum level (or "rigor"), coherence between theme and program staff, curriculum, resources, and identity (which we have called magnet "definiteness"); and extent of assistance from the district (or "special treatment"). A complete description of all the variables in the analysis is contained in Appendix III.

In order to analyze all of these variables' extent of association to our measures of magnet quality, and compare their relative effects, a multivariate correlation analysis was conducted. The resulting correlation matrix, and tests of significance for the correlation coefficients, provided a statistically reliable and valid method of determining the relationship between each variable, while controlling for the effects of other variables in the analysis. The complete matrix showing the results of our analysis is in Exhibit II.2 of Appendix III (page III-8).

The results of the correlation analysis show that three variables are highly related to all three measures of education quality (QED), reading achievement scores, and math achievement scores). These three variables, which we will explain and analyze below, are: 1) "Definiteness," 2) Principal Quality, and 3) "Special Treatment." We will focus our detailed explanation on these three school factors because they so clearly stand out as being strongly related to quality, and because each has an identifiably unique effect on education quality in a magnet school.

1. Magnet Program "Definiteness"

A magnet school's "definiteness" refers to the cohesiveness, coherence, internal coordination, and viability of the magnet program and curriculum. A magnet with high definiteness is one that has a strong identity, with the theme, curriculum, teaching methods, goals, activities, and staff effectively "meshed" to form a coherent whole. The magnet definiteness is really the process of putting all the individual elements together to form a highly identifiable and reputable program that students, parents and other educators in a district and community know to be a "good school," but also a unique and effective magnet school.

The extent of definiteness of the magnet schools in our study is correlated highly with all three of the quality measures. Definiteness is correlated with QED (quality education processes) at $r = .43$; with the reading achievement scale at $r = .53$; and with the math achievement scale at $r = .38$. Thus, almost half of the variation in education quality in the study magnets was related to variation in program definiteness.

In a quality magnet school, definiteness is organized and developed through specific actions of school planners, the principal and teachers. One important step is to select staff based on the magnet design and their commitment to making it work as a cohesive, coherent magnet with a strong identity. Principals seek staff who have more than teaching competence; they also want teachers who share goals of both theme-based education and racial integration and who want to exercise initiative to build the magnet school program.

In an Arts magnet, "definiteness" is developed by the principal seeking teachers with a fine arts background or high interest in the arts, even for the academic teachers in the arts magnet. In addition, the principal will try to secure the support of the board and central administrators for permission to use professional artists from the community for special classes or seminars, and possibly hire specialists from the community on a part-time or consulting basis. Academic teachers in the arts magnet will frequently draw on upcoming arts activities for their own classroom activities and all staff work together to maintain flexibility and coordination when special magnet activities take place. All staff typically get involved in arts productions and often spend evenings and weekends selling tickets or making sets. In sum, staff and students in a magnet with "definiteness" have a strong sense of what is expected, and what the school has that makes it unique and a special place for learning.

A magnet also gains "definiteness" by developing a unique and extraordinarily rich curriculum, such as one school we studied that extends its science magnet curriculum into the "high tech" and scientific communities that surround it. The curriculum was designed by nine subcommittees involving almost 100 people, over one-third of whom were from the local scientific community.

2. Principal Quality

A quality principal in our study basically refers to leadership qualities. A high quality principal is an exceptionally capable leader and administrator who has usually exercised extraordinary entrepreneurial drive and skills in building the magnet from the ground up. Based on our site visit interviews and observations, we rated the magnet principals on these quality criteria.

Our correlational analysis demonstrated that principal quality is highly related to all three education quality measures. Principal quality is correlated with our QED ratings at r = .56, with reading achievement at r = .56, and with math achievement at r =.54. In other words, the characteristics of the principal are closely related to the extent of quality education in the magnet. This finding is consistent with the research on effective schools, which has emphasized the critical leadership role of the principal.

The high quality principals in our study were not typically highly experienced as principals or school administrators. However, all were widely respected within their districts as educators, and all had solid backgrounds in curriculum development and leadership. Further, the quality principals generally are very enthusiastic about their "once-in-a-lifetime" opportunity to design and create a school or program, and to make a real innovation.

The quality principals also had full support of the superintendent and other top administrators, and often had high visibility with parents and the community which became a valuable resource in program development. Typically, the principals undertook extensive planning, visiting magnets in other districts, calling in expertise from curriculum units within the district, and forming planning teams of teachers and specialists. After several months of design work, the principals selected administrative and teaching staffs, which often involved extensive interviewing and consideration of applicants. In most cases, principals select from existing district staff who apply, but also maintain some freedom to select the best staff for the magnet.

Principal quality was an important factor regardless of the type of organization of the magnet, whether total-school or part-school. Generally, administrative organization and operation of the total-school magnet is easier in many respects than for the part-time program models. In order to implement a successful magnet that offers high educational quality, strong and specialized leadership is required. Where the magnet leader is the principal--as for the total-school magnet--leadership of the magnet is the same as leadership of the school and there are no conflicts of goals or authority. However, where the key magnet leader is not the principal--as is typical for magnet programs within schools--conflicts, confusion, and leadership vacuums can arise. This is particularly the case where the school principal is indifferent (or even hostile) to the magnet program or simply drawn off by the larger concerns of running the whole school, or when the magnet leader has direct access to central administration.

The successful magnet programs in our sample solved these problems by subordinating the authority of the key magnet leader to that of the principal. Most relied upon a magnet coordinator or director within the school who worked closely with the principal. While this tends to divide magnet leadership, it does give the principal clear and direct line authority over the program. And, depending on the desires and inclinations of the principal and the magnet leader, it also tends to give the magnet program visibility and access to the school's (and often the district's) power centers.

However, under this administrative model, much depends upon the principal and the relationship between the principal and the magnet leader. One school where it worked well had a principal that was keenly interested in the magnet program both educationally and politically. The magnet coordinator, who is the school's lead curriculum coordinator, is a highly energetic and communicative enthusiast for the program, who also has deeply felt lifetime ties to the school itself. Here, the principal and coordinator work together as a dynamic leadership team to make the magnet "go," with the principal actively supporting and delegating to the coordinator.

3. "Special Treatment" from the School District

The third major factor that is consistently related to education quality for the magnet schools in our study is some "special treatment" from the district level. Special treatment refers to how the magnet is treated by the district administration, specifically how great an allocation of support and attention it receives from the top leadership. The forms of special treatment vary, but generally include: some flexibility for staff time to design and develop the program, small extra funds for startup costs, allowance for variation from standard school procedures relating to staff, students and curriculum, and a degree of autonomy and flexibility for the magnet principal. The combination of these kinds of special treatment, which often are not large differences, is what gives magnet planners, principals and staff the assurance, as well as the resources, that encourage them to create and continue a magnet innovation that works.

The special treatment variable is highly correlated with the three measures of quality with the following coefficients: r = .55 with QED; r = .44 with reading achievement scale; and r = .45 with math achievement scale. Thus, the statistical analysis demonstrates and validates what our field staff observed -- that magnets need some specific and clear indications of district support and room to innovate and produce high quality education. The special treatment variable captures the extent to which the study districts provided for and allowed magnet schools to be different, and encouraged the development of high quality programs.

Special treatment is typically provided in a way that gives magnets some support for innovation, but does not lead to these schools being viewed as having permanent special favor and

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advantage from the school board and central administration. Many districts initially provide special funding, political support, exceptions for staffing, exemptions from district norms for discipline and parent relations, and general special attention. But, many administrators were fearful of too much attention going to the magnets. They wanted to continue to strive to make all their schools good and did not want magnets to become a permanent drain on scarce resources, both fiscal and staff. Thus, a compromise position is often taken, such as giving a "window" of special treatment during the start-up phase. Districts emphasize that this is customary with any new school or program. After approximately a two-year start-up period the magnets become treated like other schools, with the hope and belief that the patterns of specialness and innovation that have begun will be maintained by the principal, school staff, students and parents.

Summary of School Characteristics Related to Magnet Quality

The three major factors that we have found most strongly related to education quality in magnet schools -- program "definiteness," principal quality, and district special treatment -- together explain most of the variation in quality in our sample schools. Using a multiple regression analysis, which provides a summation of individual variable effects, we found that the three factors we have analyzed explain 66 percent of the variation in education quality.* This means that in a large majority of the magnet schools, these three factors account for most of their education quality.

We conclude, then, that when a magnet has solid support from the district administration and solid leadership from the principal (or magnet program leader), and has formed a coherent and definite identity, it is able to deliver educational quality. Where these elements are absent, or where one or two are so lacking that those present cannot compensate, magnet ability to offer educational quality declines substantially.

CONCLUSIONS

This chapter has dealt with whether, how, and under what conditions magnet schools and programs develop and maintain educational quality. Magnets are but one of many strategies and tools available to school districts in their quests to improve educational quality. As tools, the greatest value of magnets may reside in the occasions and opportunities for creativity and experimentation they provide. They are flexible and can be designed to fit the unique needs, desires, and resources of any given school district in any given year. The diversity of magnets--evident even in our limited sample of 45--is astonishing.

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* See Appendix III, Exhibit III.5 for an explanation of our multiple regression analysis. Appendix III also provides summaries of the relation of these factors to education quality in individual magnet schools in our study, and how quality was not produced in schools that did not emphasize these factors.

In response to the first major question directing analysis for this chapter, we have shown that magnet schools can and do offer educational quality. One-third of the magnet schools in our study rated high on all five of our ratings of quality educational processes and had reading and math achievement scores significantly above district averages. The majority of magnets which were near the mean on our overall education process rating had some elements of quality education, and some weaknesses, but scored above district averages on test scores. Our study has also found that most magnet schools offer quality improvements in their district by increasing educational diversity through unique themes and methods of organizing education, and offering students and parents a choice in type of education.

On the second question of magnet selectivity for students, our analysis shows schools do not need to use selectivity in admitting students. High quality magnets serve average students as well as higher ability students.

Third, we have found that high education quality is produced by three factors. High quality magnets receive special treatment and support (both political and fiscal) from their district administrations and boards. For most, this was the sine qua non of their origin and development. Next, they are led by strong, capable, innovative, energetic and entrepreneurial principals. Finally, these principals, using their own abilities and energies and the attention and "exceptions" the district provides, forge a magnet that is highly "definite." That is, it has a strong identity and vision; clear goals; cohesion and coherence of theme, activities, faculty qualifications, and facilities; and a consensus among faculty, staff, and students regarding what it is about. Low educational quality magnets are typically absent or weak in all or most of these elements.

In sum, we find that the evidence from our analysis of educational quality in magnet schools demonstrates that the magnet school model offers much to be recommended to educators, parents and policymakers. Magnet schools that receive strong district and community support, and are developed by principals, teachers, and parents that have energy, interest and creativity, can produce very effective effective public education. The concept does not always succeed. We find variation in quality among magnet schools as among any group of public schools. But, we have clearly established that magnet schools can be educationally effective and we know what factors are necessary to produce those quality effects.

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CHAPTER IV

DESEGREGATING PUBLIC SCHOOL SYSTEMS

INTRODUCTION

Magnet schools evolved between 1965 and 1975 as settings in which desegregative ideals could be practiced on a basis of voluntary choice exercised by parents and students. As they became more widely used, and as federal funds stimulated their development between 1975 and 1980, magnets came to play an increasingly strategic role in fostering systemwide desegregation. The advent of magnet plans and practices have affected the desegregation process in urban public school systems nationwide, and by their voluntary enrollment have also offered a model for developing positive racial/ethnic integration with public schools.

Considered from the vantage point of racial/ethnic desegregation, a magnet is a potentially powerful and versatile tool. For a local system as a whole, a magnet may pull students and staff into facilities and programs where they might otherwise not enroll, and this can in turn change the composition of many other schools. At the level of any one school, a magnet can be used to generate a student and staff mix of any kind because it can be composed deliberately rather than by reliance on attendance zones, age groupings, or other geographic and demographic boundaries. Both of these purposes can be achieved, moreover, on the basis of consumer choice, so that the tool is put to work in a cooperative, free way rather than in conflictual, coercive, or categorically arbitrary ways.

Due to the strong potential of magnet schools as a model for a voluntary approach to desegregation, and the continued concern and debate over desegregation at national, state and local government levels, the Department of Education was very interested in having the magnet schools study answer several basic questions concerning magnets and desegregation. The four main questions that have directed our analysis of desegregation effects of magnet schools are:

1. How effective are magnet schools in assisting the desegregation efforts of urban school districts?
2. What factors are associated with magnet school effects on desegregation?
3. Do magnet schools help reduce community conflict over desegregation and slow white flight from urban districts?
4. How effective is a magnet program in providing positive racial integration within a school and to what extent is integration related to education quality?

This chapter is organized to present our findings concerning these four questions, and several related analysis questions. We can summarize the major findings that are discussed in the chapter as follows:

- Two-thirds of our sampled districts created and maintain magnets as real and instrumental contributors to desegregation. The others maintained magnets as symbolic attempts at desegregation.
- Magnets can be used successfully to prevent or reduce community conflict over school desegregation.
- Magnets on some occasions help to defeat the aims of desegregation, yet offer a compromise between extreme segregation and full racial equality.

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- Magnets are most highly integrated where they enjoy strong leadership, definiteness of thematic purpose, congruence between label and performance, and special treatment or concern from system hosts; and less well integrated where one or more of these features is missing.
- Magnets are most productive of student achievement gains and of high quality learning environments where they are highly integrated, while desegregation itself does not correlate with learning outcomes.

How we arrived at these findings and how they are extended and supported by other findings are discussed in the following sections. In the first section of this chapter, we present our analysis results on the relation between public school systems, racial desegregation, and magnet schools and programs. In the second section, we examine the main factors producing effective desegregation with magnets with magnet schools. Third, the role of magnets in aiding with the community response to desegregation is examined. And, in the fourth section, our analysis of magnet school integration is presented and discussed.

MAGNET SCHOOLS CONTRIBUTE TO DESEGREGATION

The effects of magnet schools on desegregation must be analyzed at two levels: first, the extent of desegregation, or student racial/ethnic mix, in the magnet schools themselves; and second, the larger districtwide effects of the overall magnet program. Before examining the findings, it is important to clarify how we defined desegregation.

Study Definition of Desegregation

A fully desegregated public school system is defined for this study as one in which all students receive equal treatment, including equal access to educational opportunity. Because all 15 of the systems we studied have at one time practiced racial/ethnic segregation and discrimination (or still do) our defintion can be made more precise: A school system that has remedied past segregative and discriminatory practices is one that has *redistributed* students, staff, and resources, as well as modified its programs, so as to elmininate sources of unequal treatment. This definition does not extend to the policy of racial balance necessarily, although that policy may be used, but it does presuppose equalized access, and substantial mix of students and staff, and programs that foster inter-group respect and social learning.

Desegregation of Magnet Schools

The analysis of racial/ethnic balance among magnet school students in the 15 study districts shows that over two-thirds of the schools are fully desegregated and the other third have a substantial mix of students by racial/ethnic subgroups.

In Table IV.1, the measure called "Magnet Desegregation Sum Score" is displayed showing the distribution of extent of desegregation of the magnets in our study sample. This measure includes the extent of racial/ethnic mix, voluntariness of student enrollment, extent of faculty racial/ethnic mix, and quality of integration within the school. A score of 100 on this scale would indicate high magnet desegregation.*

The data reveal that two-thirds of the systems take pains to see that their magnets are racially and ethnically balanced; that is, fully representive of white, black, and other minority student proportions systemwide. The other third ensure a stable and substantial mix of students by racial/ethnic subgroups, but have a lower overall score.

Where magnets are not desegregated in their student mix, moreover, system officials define magnets as problematical. They take steps to "improve" student proportions, and where these do not change enrollments, they tend to question the desirability or viability of the magnet itself. In other words, with few exceptions, student desegregation becomes a critical standard for gauging the worth of magnets.

School data on staff composition show that magnets are predictably staffed by a mix of white, black, and other minority administractors, teachers, and support personnel. However, districts do not pursue policies of staff racial balance, nor do they make the staff composition congruent with the student mix. Systems operating under court orders--11 out of 15--pay as much attention to staff desegregation as the tremendously varied orders require. Without exception, then, a visitor can "find" a magnet by noting that its staff is at least partially mixed.

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* Full descriptions of all variables are contained in Appendix IV.

Table IV.1

District Scores on Magnet Role, Magnet Implementation Effort, Magnet Desegregation, and Quality of System Desegregation

District	Magnet Role in Desegregation	Magnet Implementation Effort	Magnet Desegregation Sum Score	Quality of System Desegregation
Starville	95	50	70	50
Sunshine City	90	80	86	65
Rivertown	90	65	80	50
Foundry City	90	100	68	75
Old Port	80	75	56	10
Regional City	75	100	73	70
Steeltown	75	60	81	50
Evergreen	65	75	79	80
Sister City	60	65	79	50
Midtown	25	75	81	40
Valley City	25	30	62	40
Centerville	25	65	41	60
Millville	15	100	67	80
Paradise	10	50	82	80
Clay City	5	50	67	80
Mean	55	69	72	59

Districtwide Desegregation Effects

In order to analyze the larger district effects of magnet schools on desegregation, we first had to assess the extent to which the magnet program was designed as a tool in district desegregation. Each of the districts was rated from 0 to 100 on the degree to which it relied on magnet schools for district desegregation. The distribution of this measure is shown in Table IV.1 under "Magnet Role in Desegregation."

The scores on Magnet Role in Desegregation show that 7 of the 15 districts place high reliance on magnet schools to desegregate district schools (75 or over). In other words, the magnet program has been developed with districtwide desegregation objectives. Two other districts (Evergreen and Sister City) place considerable emphasis on magnets although they use other methods of desegregation, such as zoning, two-way busing, and pairing. The six districts with lower scores use magnets as a smaller part of their desegregation plan.

The 15 systems host an average of 13.7 percent of their students in magnets, with a range from 3 percent in Old Port to 37 percent in Foundry City. On average, the systems operate 16.4 magnet schools or programs, with a low of 3 and a high of 58. The number of magnets and students enrolled is associated with the size of the magnet role in desegregation.

In order to determine if district emphasis on Magnet Role in Desegregation actually produces greater desegregation across district schools, we compared the scores with our measure of level of desegregation in all district schools, "Quality of System Desegregation." This measure gives a district score on a scale from 0 to 100 that indicates the extent to which district desegregation plans and operations are designed to desegregate all schools and students. The 15 district scores on this measure are in the last column of Table IV.1.

Four of the seven districts (Sunshine City, Foundry City, Regional City, and Evergreen) that rely heavily on magnets have attained high levels of systemwide school desegregation. In contrast, Clay City, Paradise, and Millville use magnets incidentally and in small numbers (low scores on Magnet Role in Desegregation) but achieve very high levels of desegregation using the tools of rezoning, two-way busing, and mandatory assignment of students and staff. Starville, Old Port and Steeltown represent a third option. They operate many highly segregated schools along with a few voluntarily desegregated magnets.

Thus, our analysis shows that magnets do offer an extraordinarily flexible and powerful tool for use in desegregating public school systems. However, their presence in a district does not signify that the tool has been used for this purpose. Our measure of the Quality of System Desegregation does not correlate with the emphasis on magnets as an element in the district desegregation effort. Closer inspection of where the systems fall on the two measures shows why. Seven systems among the 15 have attained high levels of system desegregation, as shown in Table IV.1. Three of these seven place a low emphasis on magnets. Among the other eight systems, four place a high emphasis on magnets.

Our sample is too purposive to fully test the question of magnet effect on desegregation. The question requires a representative sample of urban systems to be answered completely. Nonetheless, we have a noteworthy partial answer: Systems can desegregate quite comprehensively by relying heavily on magnets or by other means. The best or highest desegregation level was attained in seven systems that used a combination of tools, including magnets. In these districts, pairing, rezoning, two-way busing, and mandatory assignments are reinformed in one sense and eased by magnets in another sense.

Foundry City illustrates this finding. Its student enrollment is 47 percent black. It relies almost totally on its 21 magnets to comply with a fairly stern federal court desegregation order. Foundry City nearly succeeds in this attempt. It leaves about 20 percent of its 47,757 students racially isolated, but this is a tremendous gain relative to perhaps 60 percent isolation a decade ago. Magnets have been maximized; they cannot take up the remaining slack. Plaintiffs have continued to press for alternative remedies for a few schools, but the judge has already announced his satisfaction with "four-fifths of a loaf" in terms that suggest he will put the remedial case on inactive docket status in 1984.

In the Far West, where the enrollments are much more multiethnic, magnets are easier to install and yield results at least as extensive as those in Foundry City. Sunshine City uses 26 magnets and Evergreen uses 58, where the percent black students is 16 and 23 percent respectively. Neither system attains full citywide desegregation, but both reach high levels. Sunshine City hosts over 35,000 Hispanic and Asian-American students, and Evergreen is 25 percent other minority, which helps to increase magnet desegregation.

We must revise our *Interim Report* finding that "magnet schools ...have minimal impact on districtwide desegregative plans" (Fleming, Blank, *et al*, 1982, p.172). The impact can be very great and can generate high equity gains, or it can be an impact which defuses conflect and generates a few small gains. School boards and superintendents are not alone in choosing between these options. The U.S. Office for Civil Rights, the Department of Justice, federal and state courts, and state agencies all co-participate in complex, protracted, and sometimes contradictory decisionmaking in this regard. These policy centers insist on more, or settle for less, remediation of the wrong of segregation as they go along, and no regular trend can be discerned.

In the next section of our analysis, we examine several district factors that are associated with magnet school effects on desegregation.

FACTORS IN MAGNET EFFECTS ON DESEGREGATION

Using a correlational statistical analysis method, we used coded district and magnet school data to help identify the factors that are associated with magnet effectiveness in advancing desegregation. The correlation matrix in Exhibit IV.2 of Appendix IV displays the results of our analysis across a number of variables (summarized in Exhibit IV.1). The results show that five variables are positively associated with system desegregation: Magnet Implementation Effort, Percent Other Minority Enrollment in a District, City Size, Magnet School Location and Desegregation Policy Effort. We examine each of these factors separately.

1. Magnet Implementation Effort

This factor refers to the level of effort devoted to building the magnet program in a district, as gauged by district commitment of time and resources to magnet implementation. Each of the 15 districts was scored on a scale from 0 (no effort) to 100 (full-scale effort). These scores were based on the results of our interviews, observations and site reports. The range of scores on this measure is shown in Table IV.1, with the scores varying from 30 in Valley City to 100 in Foundry City, Regional City and Millville.

The correlation analysis demonstrates that Magnet Implementation Effort is highly correlated with Magnet Student Desegregation (r = .52). This association means that in districts that have made a strong commitment to magnet schools and established effective district systems and procedures for implementing the program, it is more likely that the magnet schools are fully desegregated. In other words, individual magnets need strong district support and effort toward desegregation in order for the schools to voluntarily attain a racially/ethnically balanced enrollment.

2. Percent Other Minority Students

Our analysis indicates that in districts that have a multiethnic student population (significant proportion of students other than black or white), it is easier to desegregate magnet schools. High multiethnicity is associated with higher magnet desegregation ($r = .44$). It is also positively correlated with a higher extent of open access to the magnet, or "voluntariness ($r = .45$). One main reason for this result is that districts that are highly multiethnic, rather than biracial, have more options on where to place magnet schools, i.e. it is easier to find a neutral location.

3. Size of District

One of the strongest correlational associations with Magnet Desegregation was with the district size factor ($r = .54$). Larger urban systems have been more effective in desegregating magnet schools.

Our sample contains only two systems that enroll fewer than 20,000 students. The mean enrollment for the 15 systems is 47,900. We have ample evidence from our pilot survey of systems to conclude that magnets are a byproduct of large, urban school systems. There were only 244 public systems out of more than 15,000 in the nation with enrollments of 20,000 or more in 1980, yet those 244 hosted about one-third of all public school students, and they account for more than nine-tenths of all magnets.

Size correlates positively with magnet implementation effort ($r = .56$). Very big systems can plan harder, invest more, and exercise more degrees of autonomy in developing magnets than can small systems. Big systems also accomplish higher levels of within-magnet staff desegregation than do small systems (r = .44). And, big systems can devise greater "voluntariness" in their student selection procedures (r = .55), because bigness makes product differentiation for wider parentsl choice feasible. Still, the quality of overall system desegregation is not correlated with size, nor do larger systems achieve higher quality integration within magnets.

System size is perhaps little more than a proxy variable for urban concentrations of biracial and multiethnic populations. Magnets had their origins in just such concentrations, where educators have had the resources and the political disposition to experiment with specialst schools in the United States for more than a century. Magnets are a natural extension of this tradition, but they need not be confined to it.

Neither our pilot study nor this survey gave evidence to support the idea that magnets are suitable solely for large urban systems. This survey does disprove, however, an hypothesis we presented in the pilot study report (1982, p. 113), which stated that very large systems create magnets but tend not to use them to achieve system desegregation, while small systems that create them do use them for this purpose. A larger sample has shown this to be an artifact of the pilot sample.

4. Magnet School Location

Where a system locates its magnets--that is, in neighborhoods that are racially unsegregated or totally identified with one racial or ethnic subgroup, and in neighborhoods that are affluent, mixed income, or impoverished--influences the desegregative potential of each magnet.

We rated our 15 systems from 100 percent location of magnets in relatively unsegregated and mixed income neighborhoods, to 0 percent where magnets were uniformly based in impoverished minority neighborhoods. Our measure correlated negatively ($r = -.47$) with our measure of districtwide desegregation quality, and negatively ($r = -.45$) with our measure of district policy efforts to desegregate. However, there is no significant correlation between magnet location and desegregative success within magnets themselves.

These results indicate that magnet location is not critical for desegregating individual magnet schools, i.e., magnets can be desegregated regardless of location. But, we also find that if districts put magnets in racially and socioeconomically neutral or mixed sites that foster magnet desegregative success, this action can detract from districtwide desegregation of schools. This happens when magnets draw students away from segregated schools in ways that increase racial isolation, and when system leaders do not make comprehensive planning efforts (policy effort correlates with system desegregation at $r = .75$).

All systems in our pilot and final samples display the knowledge and skill to locate magnets in ways that are instrumental--ways that

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are likely to get the results desired. These may not give strong weight to system desegregation, however, but may have primarily to do with serving a constituency in one part of the city, satisfying some "outside" authority such as a court, or pursuing a program innovation. Systems do not need lessons on how to locate magnets in order to achieve local policy aims. Where magnets are located in facilities or neighborhoods that detract from desegregative potential, something regarded as politically more desirable is going on:

- A facility has been closed for school use but has been "mothballed" rather than demolished or sold. A magnet is preferable to standing empty.
- A wealthy white neighborhood loves its walk-in elementary. A magnet is preferable to losing it and to being lured elsewhere.
- An impoverished black neighborhood contains a school that is all-black. A magnet program is installed that will draw whites to the school.
- All groups want an elite high school for competitively gifted students. It is installed wherever a facility, appropriate or not, can be found.
- The magnet preceded all aspects of desegregation and its location is a by-product of early land use. Its popularity is conserved by continuing it desegregatively but apart from other parts of a system's plan.

These are five examples of how other concerns intrude upon locational decisions. There are others, including court-ordered placement of magnets whether they will draw or not, simply to symbolize remediation. Taken together, they suggest that locational decisions taken to place magnets in facilities situated to attract students across racial, ethnic, and socioeconomic boundaries enhance their desegregative potential and simplify other planning efforts; yet many other concerns and interests confound the process and produce trade-offs. Location matters, then, but not enough to override other competing factors. Foundry City, Millville, and Sunshine City were examples of districts where magnets were often unfavorably located, yet they flourish desegregatively and programmatically because the systems invest hard effort toward these goals.

5. Magnets and District Desegregation Policy

The four factors we have identified above are strongly related to magnet effects on desegregation, but the strongest factor in predicting overall desegregation of the district (Quality of District Desegregation) is the desegregation policy effort of the district leadership. Policy Effort is a measure of the board and administration's degree of effort to desegregate, coded from 0 to 100. Districtwide desegregation was correlated with Policy Effort at r = .75. Thus, magnets can play an important role in district desegregation to the extent they are part of the district's strong policy effort.

Some school desegregation researchers (Willie, 1984) have concluded that effective systemwide plans usually include a careful mix of involuntary and voluntary elements. This view corresponds closely with experience in such cities as Boston, St. Louis, Dallas, and Milwaukee. Our findings do not support this proposition fully, although again this may stem from our purposive sample. For our sample, two-way busing is correlated negatively with the role of magnets (r = -.78) and with magnet student desegregation (r = -.44), but it is uncorrelated with all other variables. Where magnets play a large role, moreover, community conflict appears to be lower (r = -.59). Quality of desegregation depends on the policy effort expended and not on two-way busing or the role of magnets. Thus, there is no simple relation between two-way busing and magnets except to say that as the scope of one expands, the scope of the other declines. As noted previously, the districts with the highest ratings of district desegregation used a combination of tools.*

Our evidence suggests that magnets alone can achieve high but not full levels of system desegregation and that magnets alone are most workable when a city is multiethnic rather than biracial. It further suggests that magnets predominate in systems where early conflict is intense and school officials are unwilling or politically unable to press through the conflict and into the zone of racial equity. In some of these settings, high reliance on magnets fuses with low overall equity improvements.

It may be useful to examine some case study results from a few districts in our study where magnets did not advance desegregation to see the factors operating in these districts.

Magnets Sometimes Defeat the Aims of Desegregation

Any policy alternative can be adopted or used in ways that defeat one of its ostensible aims. Educators informed about magnets have been familiar for a decade with the misuses most often associated with them. They are reviewed in the literature on magnets (Lowry, 1982) and may be summarized as follows:

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*Appendix IV provides several case examples of magnets that played a role in desegregation.

- Magnets are adopted as a "shell game" to create appearances of desegregation.

- Magnets are introduced as a stall or a sop in the course of litigating Fourteenth Amendment disputes or complaints based on Titles of the Civil Rights Act.

- Magnets are set up in ways that provide havens for parents opposed to some aspect or consequence of a local school desegregation plan.

- Magnets succeed internally but draw off students, staff, or resources from regular schools struggling to comply with desegregation requirements.

- Magnets appear to be desegregative but in fact use elitist selection criteria which reduce minority access to the best available learning opportunities.

- Magnets admit minority students but then fail them, counsel them out, or remand them to inferior schools, thus providing a new source of relative deprivation.

Each of these possibilities except the last one materialized to some extent, large or small, in one or more of our sampled systems. The last one is exemplified in Boston, where the State Board of Education recently monitored such trends in that city's oldest, most famous special school, Boston Latin (Commonwealth, 1983). There, the federal court has required admission of black and hispanic students with qualifying scores on the admissions test, but their numbers are thinned out annually through faculty practices that have not adapted to multicultural concerns.

Steeltown has resisted desegregation in countless ways since the Brown decision of 1954. A Deep South city with a very long record of intense adherence to racial separation, Steeltown remained fully segregated by school board policy until 1967, when it adopted a freedom of choice assignment plan, approved by a federal judge. In 1968, that plan came into question as a result of the Supreme

Court Green v. County School Board decision, which defined freedom of choice plans then in use as unconstitutional. Rezoning, pairing, clustering, and school closings came into court-ordered use between 1970 and 1976. The Department of Justice proposed citywide cross-busing in 1979. Local reactions were so negative that the school board and black plaintiffs agreed upon a settlement that foreclosed this remedy. The court then ratified a consent decree which rests on putting magnet programs into several one-race schools. The leadership of one of the region's most virulent Ku Klux Klan klaverns literally stood behind the seated members of the Steeltown Board of Education as they deliberated on the magnet compromise. In addition, the compromise appealed to black leaders who had become exhausted by twenty years of struggle for desegregation. The magnets serve in Steeltown as a symbolic token of desegregation.

In Valley City, the Board of Education avoided desegregation pressures exerted by a state agency from 1970 to 1978. In 1978, it adopted a magnet plan on a 5-4 vote in hopes of satisfying the state agency. The state agency termed the plan too slight to promise remediation and, a year later, demanded a more comprehensive plan. The number of magnets was expanded from 25 to 32, 15 schools were closed, and cross-busing was introduced. The new plan is now in place. Thus, in Valley City, magnets were devised as a sop, yet they took their legitimate place later on in a full-scale remedy. As this happened, some of the magnets became exemplars of quality desegregated education.

Magnets were created in Paradise as small havens for parents opposed to the court desegregation order. They were symbols of that opposition, rallying points for those who were educational conservatives. Those persons did not oppose racial or ethnic mixing of students or staff. Their magnets were neither segregated nor exclusionary on ability standards. They did offer relief from mandatory assignment, however, and they had some recruitment advantages. White students enrolled in nonpublic schools or new to Paradise got preferred admission to the magnets. Over time, these advantages disappeared, the magnets changed internally, and all three became known simply as program options for parents.

Magnets were created in Sister City as a way to avoid community conflict over cross-busing. It was augmented by pairing sets of elementary schools within neighborhoods. When the magnets began in 1974, Sister City schools were 8 percent black and hispanic. The magnets worked to desegregate and they flourished educationally. The system is at impasse now. It cannot spend more money on more magnets without depriving the regular schools, and it cannot desegregate using the present plan. A brief reprieve was achieved by redefining Asian students as non-minority, but the state has now cited the system once again for segregative trends in a few schools, including one magnet.

Centerville uses magnets in order to attract and hold white families in an increasingly black city. Its schools are 49 percent black now and the city has lost 17 percent of its residents since

1970, nearly all of them white. Its nine magnets are 32 percent black; thus they serve as devices for reducing black access, hence equal access to opportunity. There are other systems that use magnets in this way where minority enrollments are under-represented by virtue of special admissions standards.

We have illustrated the many ways in which magnets are used to achieve particular local aims. In five system cases, however, larger aims of desegregation have not really been pursued. Even in Steeltown, where over 70 schools remain extremely segregated, magnets have stimulated gains not achieved by other means during 23 years of litigation. Their success there could forestall further gains, but then the entire surrounding state is reverting to active forms of racial discrimination in this era, according to several of our respondents. Our question should thus be answered this way: Magnets rarely defeat the aims of desegregation, but they can do so wherever local policy makers devoutly seek this end.

In the following section of the desegregation analysis, we present findings on magnet effects on the community response to desegregation.

MAGNETS REDUCE COMMUNITY CONFLICT AND CAN HELP SLOW WHITE FLIGHT

Magnets were invented as tools that would work to avoid, reduce, or mitigate community conflict over school desegregation methods, and, in some urban districts, it was hoped that magnets would reduce the loss of white students and families.

Magnets and Community Conflict

The measure of conflict is a coded variable (from 0 to 100) indicating the level of intensity of white resistance to desegregation. Our measure of conflict does not specify points in a time series. Thus, we only know qualitatively the historical relation.

Our measure of conflict is correlated with city size (r = .49). There are exceptions such as Clay City, where conflict over court-ordered desegregation was extremely intense for the first three years, but these exceptions are rare. Generally, community conflict is most intense where cities have populations below 250,000.

We find that conflict correlates negatively with percent other minority enrollment in district (r = -.46); with reliance on magnets in overall district desegregation (r = -.59); and with level of effort in implementing magnets (r = -.50).

Examining our field reports, we find that high levels of conflict led to the adoption of magnets in eight systems. The adoptions in seven of these played an important role in reducing conflict. In three others, we have evidence to suggest that magnets helped prevent or head off conflicts that were very volatile if latent in those communities. Therefore, our sample disposes us to answer the question affirmatively.

How does the process work? Citizens have been subjected to thirty years of political rhetoric about "forced busing," destruction of "the neighborhood school," and coercive intrusion into local control over education, not by invisible voices but by neighbors, kin, mayors, governors, and presidents. As the imperative to desegregate takes hold in a community, therefore, residents brace for the worst to happen. The rhetoric leads voters toward the equivalent of a man-made disaster. Against the backdrop of this vision, magnets appear to be urgently desirable. A magnet can be designed to be receptive, hospitable, safe, educative, *and* desegregatively lawful. It may require a longer commute, but it stands apart from the arena of conflict. Stated differently, it improves upon the devices of open enrollment and free choice used widely in the Deep South before they were declared unconstitutional in 1968 because they placed the burden of remedy on black students. Magnets equalize that burden of choice and initiative.

In a second stage of development, where magnets are well designed and implemented, public confidence is raised and new interest in quality integrated schooling is kindled. Where they are poorly designed or left to malfunction, magnets can stimulate new tensions and resentments.

Magnets' Role in Slowing White Flight

Some systems deploy magnets in order to prevent, stem, or reverse so-called white flight--the outmovement of whites from public school attendance within desegregating districts. ESAA magnet grants were often awarded in part because of this. Presence of an ESAA grant correlates positively with percent of whites enrolled in the district ($r = .44$) and negatively with location of magnets in mixed or "neutral" neighborhoods ($r = -.54$). ESAA officials thus invested most often in the "whitest" school systems, but funded the systems which placed magnets in lower income, minority neighborhoods. Magnets are thus intended to be "value added" programs that offset white fears of declines in instructional quality in schools they would otherwise perceive as inferior.

We have three measures of change in proportions over time: one for systems, one for cities, and one for whole metro areas. High white enrollment declines are associated with the integrative quality of magnets ($r = .69$). So, too, metro area growth is correlated with the "voluntariness" of magnets ($r = .75$) and with magnet desegregation ($r = .56$). In other words, systems based in regions of growth develop magnets that are more accessible or open and they compose the student mix more effectively. Metro area population decline reduces the degrees of freedom available for deploying and composing magnets.

Our analysis suggests the inference that magnets are most workable when they enjoy a systemwide mix of white, black, Hispanic, Asian-American, and other ethnic groups. Under these circumstances, magnets can help to hold all groups in the public schools. Foundry City is an example of an important exception: its urban population is shrinking severely, its multiethnic mix is low, and its white enrollments are dwindling, yet its magnets are a desegregative success. The level of effort to implement magnets in Foundry City has been tremendous, costly, and multiplex, and this has offset the odds against workability of the plan. It is also the case that Foundry City is 20 percent black, which is considerably lower than many urban districts, particularly in the South and Northeast.

We conclude that magnets can help a school system reduce white flight. Regional City and Centerville show, in fact, that magnets can help re-attract whites to public schools by making some schools competitive with nonpublic and suburban schools nearby. This is easier to accomplish in multiethnic than in biracial settings and in regions where population growth is occurring in tandem with economic opportunity, but it can be done under varied circumstances.

MAGNET SCHOOLS CAN OFFER QUALITY RACIAL INTEGRATION

As indicated earlier, an integrated school is not the same as a desegregated school. Integration refers to coequality among students, to intergroup respect, to inclusiveness toward all students, and to educative use of cultural differences.

Study Measure of Racial Integration Quality

Using procedures described in Appendix IV, we developed a rating scale that incorporates estimates of a school's tendency to:

- Place value on its racial/ethnic diversity.
- Include all racial/ethnic groups in its activity systems.
- Use multicultural resources in its curriculum.
- Expressly communicate the value of racial/ethnic diversity.
- Mix students fully in all programs and classes.
- Avoid ability grouping and tracking.
- Eliminate racial/ethnic assumptions about academic performance expectations.
- Convey high expectations to all students.
- Disseminate news of student success.
- Promote students according to clear performance criteria.

A magnet with a high score was posited to be one which welcomed diversity, generated intergroup respect, made educative use of cultural differences, focused on equal access to participation, avoided stereotyping in its academic treatment of students, encouraged success for all students, and was firm yet fair in its promotion policies. In Appendix IV, we explain how our field researchers rated the sampled magnets on Quality of Integration, or QI. These ratings were averaged for system scores on the QI.

Quality of Integration and District Factors

The sample mean score on the district QI was 64.6 and ranged from 49 to 76 out of a possible 0 to 100. As shown in Table IV.2, integrative quality varies greatly across magnets in some districts. To determine what district factors are related to differences in quality integration in magnets, we conducted a multivariate analysis of QI with all the district-level variables (Exhibit IV.1).

Two district factors were found to be highly correlated with average quality of integration: (1) percent of white enrollment change in district from 1979-83 ($r = .69$) and (2) implementation effort of district leaders with magnets ($r = .56$). To further analyze these relations, we conducted a multiple regression analysis of variation in QI, and found that these two variables plus the percent of students enrolled in magnets have a multiple R of .81 (i.e., explain 81 percent of the variation in district average QI). These results indicate that school systems achieve high integration in their magnets when they are most stable in their racial/ethnic composition, make most extensive use of magnets, and try hardest to implement their magnets effectively.

Two systems tied for the high score on our QI, Foundry City and Regional City, and Millville nearly matched them. All three are roughly 50-50 black and white systems which have cut their white student losses since 1979 through strong efforts. All three have worked exceptionally hard and well developing their magnets, but of

Table IV.2

District Scores on Quality of Integration and Range of Scores within Districts

District	District QI Score	Minimum/Maximum Magnet QI Score	Range
Foundry City	76	72-81	9
Regional City	76	74-79	5
Millville	74	72-77	5
Rivertown	72	68-77	9
Valley City	69	60-80	20
Clay City	68	59-82	23
Midtown	66	64-70	6
Evergreen	66	64-70	6
Old Port	66	48-87	39
Sunshine City	65	60-68	8
Sister City	62	55-69	14
Paradise	55	42-69	27
Centerville	54	42-68	26
Starville	51	39-63	24
Steeltown	49	32-58	26
Mean	65		16

the three, only Foundry City makes very extensive use of them for 37 percent of all students.

Steeltown got the lowest QI score. Desegregation has yet to reach that system, hence integration is far behind. Starville also got a low QI score. While its white enrollments are stable, only 11 percent of students are enrolled, and its efforts to implement are desultory at best.

Selectivity/Voluntariness Not Related to Quality of Integration or Magnet Desegregation

One fear of magnet critics is that voluntary choice of school actually will not be totally open and that it leads to informal methods of tracking and segregation of racial groups within magnet schools. We measured to what degree systems made their magnets voluntary by rating their magnet schools from 100% for completely accessible by choice (e.g., as in a lottery), to 0% for totally selective.

We found that voluntariness does not correlate with our measures of magnet desegregation and integration. Thus, differences in how magnets admit students are not related to their effectiveness in desegregating or providing racial integration within the magnet.

Voluntariness/selectivity is correlated highly with metro population change (r = .75), city size (r = .58), and enrollment (r = .55). Thus, big systems in cities and regions undergoing population growth tend to set up more open, accessible magnets. They have greater flexibility and can be more casual about open gates. Voluntariness is also associated with percent other minority (r = .45), indicating that a wide range of many students eases the selection process.

Voluntariness is not correlated with implementation effort or with desegregation effort, however. Our qualitative evidence suggests that systems make highly varied decisions about who gets into magnets without this detracting from desegregation.

School Factors in Quality Integration

We have concentrated on district factors and differences up to this point in our analysis of desegregation and integration. These factors surround and shape events within schools, yet school-level analysis is important because the school is the setting where teaching and learning cohere most emphatically and because particular schools do a better or worse job of desegregating and integrating themselves than one would expect from examining the system.

Our analysis of school characteristics paralleled our analysis of system characteristics in that it included demographic, organizational, and desegregation measures. The variables themselves differed somewhat because we wanted to focus on factors amenable to system control, but QI, our measure of quality of integration, remains the main variable to be explained, this time from our sample of 45 magnet schools and programs rather than the 15 systems.

Other key school variables used in our analyses were defined in Chapter III. They include: selectivity of magnet admissions; principal quality; special treatment by the school district;

directness of magnet programs and purposes; discrepancy between the implemented program and its advertised claims; and lastly, three educational outcomes measures -- educational quality (or QED), reading achievement, and math achievement.

The 45 magnets in our sample received a QI mean score of 65 and ranged from a low of 32 to a high of 87, with a standard deviation of 11.9, on a measure with a maximum possible score of 100 for an ideally integrated school.*

We found five school factors are highly correlated with quality of integration: (1) racial/ethnic composition, (2) principal quality, (3) special treatment, (4) definiteness, and (5) discrepancy. Education quality is also correlated and will be discussed in the next analysis section.

1. Racial composition of magnet students affects integration. At the system level, QI correlated positively with QI (r = .36) and percent white correlated negatively (r = -.34).

		QI		
		Low	High	
% Black Students	25% or Less	9	1	10
	More than 25%	13	22	35
		22	23	45

$\phi = .44$

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* Four schools that scored between 80 and 90 on QI are described in detail in Appendix IV. Another four that scored below 43 and as low as 32 are also described.

The cross-tabulation clarifies the association. Only 10 of the magnets have 25 percent or less black students (5 of the 10 have 15 percent or less), but 90 percent of these have low integration scores. Among the 35 magnets with higher percentages of blacks, 22 or 63 percent have high integration scores. Willie's concept of a necessary critical mass (1978) helps explain this. When the most deprived minority group falls below 25 percent of the whole, its ability to influence the whole is severely diminished. Conversely, among the 3 magnets hosting 58 to 80 percent blacks, none has a high integration score. The association between racial composition and integration is a statement about the dependence of integration upon desegregation. Percent other minority is important where schools are multiethnic for the same reason. Other demographic factors, including type of magnet (whole or part), grade levels served, and size, are not consequential for integration.

Our analysis yielded exceptionally rich findings on organization variables associated with integration quality. There are three highly intercorrelated features of magnets which go a long way toward accounting for differences in levels of integration.

2. Principal quality, rated on the basis of their reputed ability as instructional and administrative leaders, correlates with QI (r = .54). There is the possibility that integrated schools help principals look like strong leaders, but this is not borne out by our field studies. Principals who run effective magnet schools and programs tend to induce student and staff integration as one part of that effectiveness.

3. Special Treatment given a magnet by its host system and as defined in Chapter III, correlates with QI (r = .48). That treatment constitutes a measure of seriousness of board and superintendent intent, and where the intent is strong, integration is high.

4. Definiteness of the magnet (see Chapter III) correlates with QI (r = .33). Thus, the coherence and integrity of the school program and the fit of staff into the program's purposes attracts students who are treated and who work with one another in harmonious, coequal ways.

5. Discrepancy, defined as a school's departure from its advertised thematic claims, correlates negatively with QI (r = -.37). We might reverse the measure and say that the more a magnet is in observable fact what the system says it is on paper, the higher its level of social integration is likely to be.

These four organizational features are intercorrelated from a logical high between Discrepancy and Definiteness (r = -.73), to a significant--yet weak--low between Discrepancy and Principal (r = -.34). All amplify somewhat divergent features of school organization, yet they combine into a reasonably patterned account of the conditions affecting integration.

To illustrate this, we computed a multiple correlation of QI on Percent Black Students, Definiteness, and Principalship, and found an R value of .60. This is strong for a dependent variable built up out of field team ratings of something as subjective as level of racial/ethnic integration.

Integration Related to Educational Quality

Our system analysis disclosed that QI was strongly correlated with QED, our measure of educational quality of magnets (r = .63). At the school level, the two measures are equally correlated (r = .62). Thus, a magnet that is racially and ethnically integrated is also a magnet with a highly effective learning environment.

Our ability to pin down this relationship when comparing magnets goes beyond these measures, however. Integration (QI) is also significantly correlated with reading achievement (r = .44) and mathematics achievement (r = .43) as measured in Chapter III. Because these are measures of differences between magnet outcomes and systemwide score averages, we may say with confidence that racial/ethnic integration, independently measured, corresponds with the array of achievement gains due to magnet schooling. A highly integrated magnet tends predictably to be a good academic learning environment. So, too, a magnet with more than 25 percent black students tends to have better learning gains. This demographic indicator correlates .29 with reading and .23 with mathematics achievement.

CONCLUSIONS

This chapter has dealt with whether, how, and under what conditions, magnet schools and programs contribute to the policy goals of racial/ethnic desegregation and integration. We have shown that magnets evolved in recent years as one desegregative tool in a multipurpose tool-kit of devices for preventing, remedying, or mitigating the wrongs of segregation, racial isolation, unequal opportunity, and ethnic discrimination. One concern of this study has been to guage with some exactness the extent to which the tool has worked. Another has been to identify some of the factors that enable it to work well in shaping desegregation.

With respect to our first analysis question on magnet effects on desegregation, we conclude that:

- Districts create and maintain magnets as real and instrumental contributors to desegregation in two-thirds of the cases and as symbolic attempts in all others;
- Magnets either begin and cotinue on a fully desegregated basis or districts come to strain toward this goal over time;
- Magnets can have a significant role in districtwide desegregation. Among the 15 study districts, we found the following results:
    - Four rely heavily and successfully on magnets for desegregation and achieve fairly complete systemwide desegregation;
    - Three desegregate fully by other means, but utilize magnets incidentally;
    - Five give great emphasis to magnets, but have yet to desegregate their cities successfully; and
    - Three do not emphasize magnets, and have not fully desegregated.
- In a few cases, magnets defeated the aims of desegregation, yet offer a kind of compromise between extreme segregation and full racial equity.

Our findings on the effects of magnet schools on the community response to desegregation were that, first, magnets do successfully prevent or reduce community conflict over school desegregation. Second, many districts use magnets to allay white fears and attract and retain white students, while enlarging black and other minority learning opportunities.

We found that several district-level factors were related to a system's degree of success in desegregating with magnet schools:

- Magnet effectiveness is associated with the district's degree of implementation effort with the program and its objectives for desegregation.
- Districts that are larger and have a multiethnic student population have more success with magnets for desegregation.
- Magnets are easier to implement when the district is not coping with decline in the metropolitan area population.
- Districts can obtain a desegregative effect through location except when other policy factors override this concern; but, over the total sample of schools, magnet desegregation is not strongly related to location. Highly attractive locations for magnets can detract from districtwide desegregation.

Our analysis of racial integration within the 45 magnet schools and programs in the study supported the system analysis and led to the following conclusions:

- Magnets' success in integration is a function of their student racial composition. Those that enroll from 26 to 58 percent blacks are most highly integrated.
- Highly integrated magnets: enjoy strong leadership, definiteness of thematic purpose, congruence between lable and performance, and special treatment or concern from system hosts. Less well integrated ones have one or more of these features missing.
- Magnet schools are most productive of student achievement gains and of high quality learning environments where they are highly integrated, while desegregation itself does not correlate with learning outcomes.

In sum, our analysis of magnet schools and programs in 15 urban districts shows that there is substantial meaning in the term "quality integrated education," and that local public education leaders and educators know how to design and attain the ideal when and where they want to do so. Poorly integrated magnets tend to be direct results of indifference toward, or deliberate policy choices of departures from this ideal, sometimes because racial inequities are still cherished by white decision-makers and sometimes because competing ideals outweigh desegregation.

Our analysis also illuminates the relation between desegregation, integration, and quality education. Desegregation is a precondition of integration, but the two are by no means the same thing. While desegregation does not "predict" quality, within magnets a racial balance does predict academic gains. Integration and quality are highly associated; each is a correlative facet of effectiveness.

When the evidence in Chapter III is combined with findings in this chapter, a local decision issue about the value and workability of magnets gains in clarity and resolution. When school boards, superintendents, and parents debate this issue, they often do so without benefit of comparative analysis.

We have informed the two-sided issue of desirability and feasibility of magnets in several respects. First, a district whose leadership gives priority to the implementation of quality integrated education can make effective use of magnets as a powerfully facilitating tool. The tool can be used to attain other aims as well, but it is well suited to this aim in particular.

Second, magnet development will not produce either instructional quality or racial/ethnic integration in some mechanical way. These aims must be built into the decision, planning, and implementation process, but when they are and when the endeavor is earnest and adapted to local practicalities, the results are positive and predictable. Third, the decision to create and maintain magnets for these purposes, to yield these results, must be reached in tandem with decisions about their planned relation to regular or non-magnet schooling in the district. Otherwide, magnet development can impede the growth of improved teaching and learning opportunities.

And finally, racial/ethnic integration fosters effectiveness. It cannot be left to chance or to the vagaries of a policy of neutrality. It must be designed into magnets if their potentiality as learning environments is to be made optimal.

CHAPTER V
COSTS OF MAGNET SCHOOLS

INTRODUCTION AND OVERVIEW OF FINDINGS

Historically, magnet school advocates have been more concerned with issues of educational design and effectiveness than with measuring or controlling the costs of their efforts. It fell to the business management of the district to account for the funds used and to keep the operation fiscally responsible. Federal cutbacks, inflation, and local taxpayer initiatives have put increased demands on schools to consider costs more seriously when deciding whether and how to implement educational improvement strategies like the magnet option. The cost issue is especially important with respect to magnet schools in that they tend to introduce experimentation and diversity into curriculum and instructional delivery systems that have been not only comparatively uniform but also easier to control financially.

The question of magnet school costs is not directly stated as one of the four main research questions for this study. However, it is of central importance. On the one hand, "What do they cost?" is frequently the second policy question asked about magnets (the first being, "What are magnets?"). On the other hand, the cost question is implicit in two of the four main research questions:

1. What factors (e.g., expenditures) contribute to successful magnet schools?
2. What contributions do magnet schools make to meeting urban problems (e.g., the cost of education)?

The purpose of this chapter is to facilitate the use of cost data in decision-making about magnet schools by examining four key cost questions:

1. Do magnet schools cost more than non-magnet schools?
2. Do specific types of magnet schools cost more than others?
3. Do magnet schools with higher costs have better outcomes than magnet schools with lower costs?
4. Did federal funding affect local expenditures for magnet schools and quality outcomes?

The data for this chapter were gathered from eight school districts which represent a range of student populations and geographic locations: Millville, Steeltown, Foundry City, Clay City, Old Port, Valley City, Sister City, and Evergreen. The chief financial officer in each district was asked to provide data on annual expenditures and personnel for Academic Years 1980-81 and 1981-82. At the district level, data were requested on line item expenditures and personnel for all magnet and non-magnet elementary, intermediate and secondary schools. At the school level, similar expenditure and personnel data were collected from the three magnet schools visited by the study team. A more technical description of our data collection effort is in Appendix V.

Our analyses of these cost questions yielded several main findings:

1. In terms of total cost per pupil, magnet schools cost about 8% more than non-magnets, particularly at the secondary level.
2. However, this difference narrows over time, suggesting that while start-up costs are greater for magnets, post start-up operating costs tend to equalize.
3. Magnet schools in our sample had 27% higher pupil transportation costs than non-magnets.
4. High financial investments in magnet schools were associated with higher levels of integration and educational quality.

How we arrived at these findings and how they are extended and supported by other findings are discussed in the following sections of this chapter.

Definition of Cost

Our definition of cost includes all personnel and non-personnel resources used by schools, regardless of whether the resources were purchased with a local appropriation, state aid, or ESAA grant. It also includes not only direct costs easily and conveniently attributable to individual schools but also an equitable portion of the district's administrative overhead and other indirect costs. We use this broad definition of cost because it describes the "full" costs of magnet and non-magnet schools and because other studies of educational organizations, such as the change agent study conducted by Berman and McLaughlin (1977), note the importance of identifying "hidden" operating costs. For example, an analysis of direct school costs would concentrate on instructional supplies and classroom teacher salaries in that they are readily assignable to individual schools and can account for 60-70% of a district's total budget. (Dentler and Chabotar, 1981; Dentler, Chabotar, and Cole, 1983). However, measurement of direct costs alone overlooks other costs incurred at the district level but attributable to the schools, e.g., the salaries of district administrators and major purchased services like pupil transportation. Such indirect costs represent real and measurable costs of operating both magnet and non-magnet schools. In this study, expenditures that were not conveniently attributable to individual schools were first classified as either district level overhead (e.g., superintendent's salary, data processing) or other indirect cost (e.g., pupil transportation, utilities) and then allocated to individual schools based on relative shares of total district expenditures, classroom teacher staff, or pupil enrollment.

MAGNET SCHOOLS COST SLIGHTLY MORE THAN NON-MAGNET SCHOOLS

The question of comparative costs is simpler to pose than to answer. There are many different types of cost to be compared, both personnel and non-personnel. In addition, the costs have to be expressed as unit costs rather than as aggregate costs so that differences in district or school size do not produce misleading variations in educational costs.

Analyses compared magnet versus non-magnet schools on five types of unit cost: (a) total cost per pupil, (b) salary cost per classroom teacher, (c) total personnel cost per pupil, (d) total non-personnel cost per pupil, and (e) pupil transportation cost per pupil. Costs will be reported for 1980-81 and 1981-82 in constant dollars in order to remove the effects of inflation from the analysis, with the all-urban consumer price index used to deflate the 1981-82 dollars to their equivalent purchasing power in 1980-81.

A. Total Cost Per Pupil

Table V.1 compares the average total cost per pupil in magnet schools with the average costs in non-magnet schools for 1980-81 and 1981-82. It also disaggregates these costs by school level: elementary, intermediate, and secondary. Costs are expressed in constant dollars. By "total cost," we mean the direct and indirect costs incurred by the district on behalf of the schools for salaries, employee benefits, purchased services, supplies and materials, capital outlay, and other objects.

Table V.1

Average Total Cost per Pupil

School Level / School Type	ELEMENTARY		INTERMEDIATE		SECONDARY		ALL SCHOOLS	
	80-81	81-82	80-81	81-82	80-81	81-82	80-81	81-82
MAGNET	$2,263	2,308	2,978	2,791	3,503	2,953	2,652	2,618
NON-MAGNET	$2,268	2,401	3,348	3,240	2,667	2,787	2,452	2,559

One important finding from the table is that magnet secondary schools in particular cost more than secondary non-magnets. As will be discussed, higher classroom teacher salaries and higher non-personnel costs were the principal factors underlying these higher magnet school costs. The magnets cost more than the non-magnets in both years of the analysis although not by as much in 1981-82 as in 1980-81. Comparing all magnet schools with all non-magnets in the eight districts reveals that the average cost per pupil in 1980-81 was $2,652 for the magnet schools and $2,452 for the non-magnet schools, or a difference of $200 or about 8%. This difference narrowed in 1981-82 to $59 ($2,618 per pupil for the magnets and $2,559 for the non-magnets) or about 2%.

To illustrate the impact of such cost differentials on a school district's operating budget, take the hypothetical case of a district with 10,000 pupils enrolled in magnet schools and 40,000 in the regular program. In 1980-81, the 10,000 magnet pupils would, at $200 each, generate an extra $2 million in expenditures and add about 1.6% to the budget. In 1981-82, the extra expenditures attributable to the magnet pupils would drop to $590,000 and a budgetary increment of .4% (10,000 pupils @ $59 each). Whether or not these additional expenditures are acceptable depends on the ability of the school budget to absorb them, on the availability of state or federal aid to fund selected expenditures (e.g., pupil transportation) and thereby lower the incremental cost to the district of the magnet program, and, most importantly, on the extent to which the additional expenditures buy additional benefits in terms of student achievement, integration, and other outcomes. (The relationship between magnet school costs and outcomes is examined later in this chapter.) The same considerations apply if the district is contemplating the expansion of magnet programs beyond the 10,000 pupils currently enrolled.

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For magnet schools in general in 1981-82, Valley City had the highest total costs per pupil at $3,832 and Steeltown the lowest at $1,609. A major cause of Valley City's high costs was that it had the lowest pupil/teacher ratio for magnet elementary and intermediate schools among the eight districts at 16:1 and 12:1, respectively. Indeed, this study found that total costs were influenced most significantly by pupil enrollment (r=.53) and by the percentage of white students (r=.38). As enrollment and the percentage of white students increased, total costs per pupil decreased. The strong relationship between enrollment and total costs suggests the impact of economies of scale.

For secondary schools, the differences between magnet and non-magnet schools were more substantial. The average total cost per pupil in 1980-81 was $3,503 for magnet secondary schools and only $2,667 for non-magnet secondary schools, or a difference of $836 per pupil. However, this difference also narrowed by 1981-82 to $166 ($2,953 per pupil for magnet secondary schools and $2,787 for non-magnet secondary schools).

A second finding is that on the elementary and intermediate levels, magnet schools cost less than non-magnets due mainly to lower personnel costs (salaries, employee benefits). On the elementary level, magnet schools cost $5 less per pupil than non-magnets in 1980-81 and $93 less in 1981-82. In percentage terms, magnet elementary schools cost about .02% less than non-magnets in 1980-81 and about 4% less in 1981-82. On the intermediate level, magnet schools cost $370 or 11% less in 1980-81 and $449 or 14% less in 1981-82. On both levels, Valley City and Foundry City tended to have the highest total costs per pupil while Steeltown and Clay City had the lowest. For example, the total cost per magnet elementary and intermediate pupil in 1981-82 was $4,513 in Valley City. In

Clay City, the cost per magnet elementary pupil was $1,543. In Steeltown, the cost per magnet intermediate pupil was $1,416.

A third finding is that between 1980-81 and 1981-82, magnet school costs generally decreased and non-magnet school costs increased. (The only exceptions were the small increase recorded on the magnet elementary level and the small decrease on the non-magnet intermediate level.) All non-magnets increased their costs by 4% in constant dollars while the magnet schools descreased their costs by 1% which reflects to some extent the loss by six of the eight districts in the sample of their ESAA operating funds in September, 1981.

B. Salary Cost Per Classroom Teacher

The salary costs of classroom teachers constitute the single largest expense of operating a school. Table V.2 depicts the average unit costs incurred by magnet and non-magnet schools for classroom teacher salaries. This cost includes regular salaries and overtime but not fringe benefits.

Table V.2

Average Salary Cost per Classroom Teacher

School Level / School Type	ELEMENTARY		INTERMEDIATE		SECONDARY		ALL SCHOOLS	
	80-81	81-82	80-81	81-82	80-81	81-82	80-81	81-82
MAGNET	$20,182	19,761	23,403	22,696	21,527	21,623	21,055	21,202
NON-MAGNET	$19,572	20,411	24,967	22,130	20,373	21,202	20,016	20,507

The table shows that magnet school teachers in general earned higher salaries than teachers in non-magnet schools. In 1980-81, magnet school teachers earned an average $21,055 per year while non-magnet teachers had an average annual salary of $20,016 or a difference of $1,039 or about 5%. This difference narrowed to $695 or about 3% in 1981-82 when average annual salaries were $21,202 for magnet school teachers and $20,507 for non-magnet school teachers. In examining salary cost variation by school level in 1981-82, magnet school teachers earned more than non-magnet school teachers at the intermediate level ($22,696 vs. $22,130) and secondary level ($21,623 vs. $21,202) and less at the elementary level ($19,761 vs. $20,411).

Evergreen paid the highest average annual salary for magnet school teachers in 1981-82 at $29,956. Foundry City's $32,007 was the highest average annual salary for non-magnet teachers. For both magnet and non-magnet school teachers, Millville paid the lowest salaries at $16,735 and $15,600 respectively. The variance between the districts with the highest and lowest paid teachers could not be attributed to differences in the cost-of-living. For example, Evergreen's magnet school teachers were paid 79% more on the average than magnet teachers in Millville, while the difference in consumer prices was only 3%. Salary differences were due more to local custom (e.g., the two districts with the lowest average salaries were in the Deep South), community support for education, and the district's willingness to pay higher salaries for magnet teachers specializing in thematic subjects or honors programs.

In addition, the study uncovered a significant correlation between average salary costs per teacher and the racial composition of the teaching staff. The larger the percentage of white teachers, the higher the average teacher salary at the school level (r = .45). The negative correlation between salary costs and the percentage of personnel costs among the eight districts at $1,714 per pupil due in part to its 45:1 pupil/teacher ratio in the elementary magnet. salary costs for classroom teachers also had the highest percentages of black teachers. These were districts in the South, where teacher salaries tend to be much lower than in the North or the Far West. Furthermore, black teachers often earned less than white teachers because the black teachers were hired more recently in response to affirmative action and staff desegregation pressures (or court orders) and thus have less seniority.

C. Total Personnel Cost Per Pupil

The average costs per pupil incurred by the eight districts for the salaries and fringe benefits of classroom teachers, administrators, specialists, and other professional and clerical staff are presented in Table V.3. Fringe benefits include retirement contributions, paid insurance, tuition aid/inservice, workmen's compensation, sabbatical leave, and social security. These personnel costs were assigned directly to magnet and non-magnet schools based on work location or allocated to the schools as an indirect cost when the staff assignment involved more than one school, e.g., central district staff or specialists.

Table V.3

Average Total Personnel Cost per Pupil

School Level / School Type	ELEMENTARY		INTERMEDIATE		SECONDARY		ALL SCHOOLS	
	80-81	81-82	80-81	81-82	80-81	81-82	80-81	81-82
MAGNET	$1,512	1,524	2,028	1,887	2,193	1,868	1,775	1,709
NON-MAGNET	$1,545	1,626	2,347	2,231	1,863	1,935	1,686	1,751

Overall, magnet schools had lower personnel costs than non-magnets. In 1981-82, the average cost per pupil in all magnet schools in the survey was $1,709 versus $1,751 for the non-magnets. The differences between magnet and non-magnet schools were greatest at the intermediate level ($1,887 per pupil for magnets and $2,231 for non-magnet schools) and the least at the secondary level ($1,868 vs. $1,935). Given that magnet schools had higher salary costs for classroom teachers than non-magnets, the lower overall personnel costs for magnets were due in part to lower fringe benefits. In fact, as a percentage of salaries, the fringe benefit rate in magnet schools approximated 15% and in non-magnets 18%. It seemed that magnet school teachers incurred lower fringe benefit costs for tuition aid/inservice and unemployment compensation due to higher retention rates.

Between 1980-81 and 1981-82, magnet school personnel costs per pupil decreased in constant dollars while non-magnet school costs increased.* For example, the average for all magnet schools declined from $1,775 per pupil in 1980-81 to $1,709 in 1981-82 during the same time that non-magnet personnel costs rose from $1,686 to $1,751. These trends were due largely to disproportionate changes in total expenditures and pupil enrollments and to sharp cutbacks in ESAA magnet funds during this period.

Evergreen had the highest personnel costs per pupil for all magnet schools ($2,653) and on the secondary level ($3,003). On the elementary and intermediate levels of magnets, Valley City's $2,816 per pupil was the highest. Sister City incurred the lowest personnel costs per pupil for elementary magnets ($594) while Steeltown had the lowest costs on the intermediate ($1,215) and secondary levels ($1,353). Magnet schools in Sister City also had the lowest overall personnel costs among the eight districts at $1,714 per pupil due in part to its 45:1 pupil/teacher ratio in the elementary magnet.

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* This statement pertains both to school costs in general and to costs on specific levels with two exceptions. Personnel costs per pupil in magnet elementary schools increased from $1,512 to $1,524 and decreased in non-magnet intermediate schools from $2,347 per pupil to $2,231.

D. Total Non-Personnel Cost Per Pupil

Non-personnel costs are incurred for purchased services, supplies and materials, capital outlay, and other objects. Each of these objects incudes a wide range of goods and services:

Non-Personnel Object	Includes Items Such As:
PURCHASED SERVICES	
Pupil Transportation	
Other Purchased Services	Professional and technical services Property services (utilities, maintenance, etc.) Travel and transportation Communications (telephone, postage, etc.) Advertising Tuition (special education, vocational education, etc. Data processing services Printing and binding
SUPPLIES AND MATERIALS	Supplies (office, classroom, vehicle, maintenance) Textbooks Library books and periodicals
CAPITAL OUTLAY	Building repair and renovation Equipment Furnishings
OTHER OBJECTS	Memberships Insurance and judgments Extra-curricular expenses Cafeteria subsidy Other

School districts which participated in the survey varied in their capacity to assign non-personnel costs to specific school types or individual schools. A few districts were able to assign all or most of these costs directly to the schools that incurred them. At the other extreme, most districts could assign few of these costs directly to specific schools and they or we used pupil enrollment and similar allocation bases to allocate total expenditures in each non-personnel object among school types and levels as an indirect costs. The results of these direct assignments and indirect allocations are depicted in Table V.4.

Table V.4

Average Total Non-Personnel Cost per Pupil

School Type \ School Level	ELEMENTARY		INTERMEDIATE		SECONDARY		ALL SCHOOLS	
	80-81	81-82	80-81	81-82	80-81	81-82	80-81	81-82
MAGNET	$751	784	950	904	1,310	1,085	878	909
NON-MAGNET	$723	776	1,002	1,009	805	852	766	808

The table discloses that magnet schools had higher non-personnel costs than non-magnets except on the intermediate level. The average non-personnel cost per pupil in magnet intermediate schools in 1980-81 was $950 while non-magnet schools at that level spent $1,002 per pupil. This difference increased in 1981-82 when magnet intermediates decreased their non-personnel costs to $904 per pupil and non-magnet costs increased to $1,009.

Magnet schools in general had non-personnel costs of $878 per pupil in 1980-81 and $909 in 1981-82 while non-magnet schools also increased their non-personnel costs from $766 to $808 per pupil. However, the difference between magnet and non-magnet schools was most significant on the secondary level. Non-personnel costs for magnet secondary schools were $505 higher per pupil than non-magnets in 1980-81 ($1,310 vs. $8059) and $233 higher in AY 1981-82 ($1,085 vs. $852). Much of the difference in non-personnel costs was attributable to larger capital outlays by the magnet schools for the equipment needed to serve their special missions, e.g., computer hardware and printers for a science magnet, radio and television equipment for an arts magnet, and medical equipment for a health occupations magnet. These data suggest that the difference in non-personnel costs is a major reason why magnet schools in general and secondary magnets in particular had higher total costs than non-magnets.

However, there is evidence that magnet schools incur their highest non-personnel costs in their initial years of existence and that these costs decline over time. This makes practical sense in that schools make large purchases of equipment, furnishings, and textbooks in order to open and make these purchases much less often in later years. In addition, this study found a statistical relationship between the number of years that a magnet school had been operating and its non-personnel costs per pupil. The higher the number of years in operation, the lower the non-personnel costs (r = -.48). This suggests that if this cost study compared magnet and non-magnet school costs again in a few years, the magnet schools would be more likely to have the bulk of their non-personnel expenses behind them and therefore be less likely to have higher non-personnel costs than non-magnets.

Millville had the highest non-personnel costs per pupil for all magnet schools in 1981-82 at $1,606 and Steeltown the lowest at $255. Many of Millville's non-personnel costs were attributable to the new Baines health magnet which incurred $2,615 per pupil in expenses for laboratories, computers, and equipment needed for its many practicum and advanced courses in the health professions. Although federal funds had been used originally to construct and equip the laboratories, local funds were now being used to maintain them. Baines also had a very low pupil/teacher ratio of 8:1, which was lower than the ratios in the other schools in Millville (19:1) or in comparable magnet schools.

On specific levels of magnet schools, Valley City had the highest non-personnel cost per pupil at the elementary level ($1,697) and Steeltown the lowest ($253). Steeltown also had the lowest non-personnel costs on the intermediate ($201) and secondary ($275) levels. Sister City had the highest non-personnel costs per pupil on the intermediate level ($1,896) and, predictably, Millville incurred the highest costs among magnet secondary schools ($2,615).

E. Pupil Transportation Cost Per Pupil

Pupil transportation is a purchased service which is usually paid from district level funds rather than school level funds. Hence, it was often necessary in this study to allocate pupil transportation costs indirectly to schools based on pupil enrollment which is insensitive to the magnet school vs. non-magnet school issue. Only three of the eight districts were able to assign even a portion of these costs directly to the schools based on pupil ridership or actual and estimated mileage. Table V.5 presents the average pupil transportation cost per pupil in magnet and non-magnet schools.

Table V.5

Average Pupil Transportation Cost per Pupil

School Level / School Type	ELEMENTARY		INTERMEDIATE		SECONDARY		ALL SCHOOLS	
	80-81	81-82	80-81	81-82	80-81	81-82	80-81	81-82
MAGNET	$162	200	161	182	153	178	140	175
NON-MAGNET	$124	145	158	162	127	138	128	138

Magnet schools had 27% higher pupil transportation costs than non-magnets. The average for all magnet schools was $175 per pupil and $138 per pupil for non-magnets. This difference is not surprising given that while some districts operate magnets on an attendance zone basis, most magnets draw students system-wide which tends to drive up pupil transportation costs. The magnitude of the difference can be illustrated by examining a hypothetical district with the same total pupil transportation budget as the average district in our sample ($6.5 million). If this district has 15% of its pupils enrolled in magnet schools and has to bus all of them, the difference of $37 per pupil in magnet vs. non-magnet school transportation costs adds approximately $275,000 to the transportation budget or about 5%.

Magnet elementary schools had the highest pupil transportation costs at $200 per pupil and magnet secondary schools the lowest at $178. All schools experienced slight increases in transportation costs between 1980-81 and 1981-82 (even in constant dollars) although the increases were considerably larger for non-magnets than for magnets.

On the elementary and secondary levels, Sister City had the highest transportation costs per pupil, $307 and $384 respectively. Clay City had the highest costs on the secondary level at $336 per pupil. For magnet schools in general, Evergreen's $310 per pupil was the highest among the eight districts surveyed. The lowest cost for pupil transportation was incurred in Steeltown at $24 per pupil.

This was due to a variety of factors, including using attendance zones for magnets, contracting out for transportation services, and busing students from central distribution points rather than from home to school.

In summary, magnet schools cost more than non-magnet schools. Magnet secondary schools cost more than non-magnet secondary schools while magnet elementary and intermediate schools cost less than non-magnets. Most of the difference between magnet and non-magnet schools is due to higher costs for magnet school classroom teacher salaries and non-personnel expenses. The highest costs for magnet schools were incurred in Valley City and Evergreen and the lowest in Steeltown.

SINGLE-THEME MAGNETS LESS COSTLY THAN MAGNETS WITH COMBINATION THEMES

The second question asks about cost variation among magnet schools. Using 1981-1982 data, Table V.6 compares unit cost among magnet schools specializing in arts, science, social studies, occupations, general academic, a combination of subjects, and others.*

The table shows that, among magnet schools, occupations magnets had the highest average total costs per pupil ($4,846) attributable mainly to extraordinarily high non-personnel costs per pupil ($2,615).

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* None of the districts that participated in the cost study included a business magnet.

Table V.6

Average Unit Costs for Different Types of Magnet Schools

Unit Cost / Magnet School Type	N	AVERAGE TOTAL COST PER PUPIL	AVERAGE SALARY COST PER CLASSROOM TEACHER	AVERAGE TOTAL PERSONNEL COST PER PUPIL	AVERAGE TOTAL NON-PERSONNEL COST PER PUPIL	AVERAGE PUPIL TRANSPORTATION COST PER PUPIL
ARTS	6	$2,686	$24,823	$1,836	$ 850	$171
SCIENCE	2	2,214	18,593	1,521	693	118
SOCIAL STUDIES	1	1,899	19,055	1,534	365	24
OCCUPATIONS	1	4,846	18,525	2,231	2,615	186
GENERAL ACADEMIC	8	2,408	23,854	1,734	674	238
COMBINATION	4	3,358	23,848	1,960	1,398	214
OTHER	1	3,798	25,468	2,529	1,269	200

However, the one school in the occupations category was the Baines health magnet in Millville which was discussed previously and may be atypical of other magnets in this category.

Four magnet school types are represented by more than one school in the table: arts, science, general academic, and combination magnets. Among these magnets, combination schools were most expensive; they had the highest average cost per pupil ($3,358), personnel cost per pupil ($1,960), and non-personnel cost per pupil ($1,398). This suggests that districts seeking to offer a "supermarket" of subjects at magnet schools must be prepared to incur higher costs than those incurred by magnets that are focused more narrowly. Diversity has its costs as well as its rewards.

Arts magnets had the second highest average cost per pupil ($2,686) and paid the highest average salaries to classroom teachers ($24,823). The most expensive arts magnet was Nathan in Evergreen, which cost $3,490 per pupil in 1981-82. It had a radio and television facility with on-air broadcasting 12 hours per day, complete graphics production, and fully equipped photography lab. Elmore in Clay City was the least expensive at $1,487 per pupil. Although its theatre arts and drama facilities were excellent, its total costs were reduced by releasing its pupils to a neighboring high school for regular academic instruction, allowing higher than average pupil/teacher ratios, and being located in a district with low educational expenditures in general. (Clay City had the second lowest average costs per pupil for the eight districts in our sample.)

The least expensive magnets were in social studies, with total costs per pupil of $1,899. Among the four magnet school types with more than one school, science magnets had the lowest total costs at $2,214 per pupil and paid the lowest salaries to classroom teachers at $18,593. The generalizability for this finding is somewhat questionable in that the average total cost for science magnets represents an average between two extremes: Lanier in Valley City with its total cost per pupil of $2,954 and Tolman in Steeltown at $1,474. Lanier had outstanding materials and equipment with what the district claims is the best equipped computer science lab in the United States. The lab contained a Data General Elipse S/200 computer, a line printer, a matrix printer, a card reader, key punch machine, and 23 terminals. At the other extreme, Tolman was located in the district with the lowest average costs in the sample. Its relatively low costs per pupil were also attributable to its poor maintenance and, more importantly, to its minimal adaptation as a science magnet with only four advanced placement courses and two science electives distinguishing Tolman's curriculum from other high schools in Steeltown.

HIGHER MAGNET SCHOOL COSTS RELATED TO HIGHER EDUCATIONAL QUALITY AND INTEGRATION QUALITY

In an era of governmental fiscal austerity, the question of whether magnet schools with higher costs have better outcomes than magnet schools with lower costs has significant policy implications. As reported earlier in this chapter, magnet schools in general and magnet secondary schools in particular cost more than non-magnets. If it can be demonstrated that magnet school costs are not signifcantly related to magnet school outcomes, perhaps their costs can be cut without necessarily impairing their effectiveness. On the other hand, a significant relationship between costs and outcomes may justify higher expenditures for magnet schools on the grounds that "you get what you pay for."

Table V.7 presents the results of Pearson product moment correlations between selected magnet school unit costs and outcomes. The unit costs selected were average total cost per pupil and average salary cost per classroom teacher for 1981-82. Selected outcomes were the scaled values for quality of integration and quality of education at the district and individual magnet school levels. Minimum acceptable level for statistical significance was $p \leq .05$.

The table demonstrates a significant relationship at the district level between total costs per pupil and both quality of integration ($r = .34$) and quality of education ($r = .38$). It appears that higher financial investments in magnet schools

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Table V.7

Pearson Correlations between Selected Magnet School Unit Costs and Outcome Indicators

Indicator Unit Cost	QUALITY OF INTEGRATION		QUALITY OF EDUCATION	
	District Level (N = 8)	School Level (N = 23)	District Level (N = 8)	School Level (N = 23)
AVERAGE TOTAL COST PER PUPIL	+.34 $p \leq .05$	+.23	+.38 $p \leq .03$	-.09
AVERAGE SALARY COST PER CLASSROOM TEACHER	+.15	+.28	-.10	-.20

were associated with higher levels of integration and educational quality. These strong correlations are especially noteworthy in that they relate quantitative dollar values to scaled outcome values based on qualitative interview and observational data.* Moreover, the cost and outcome data were compiled and analyzed by independent research teams.

A look behind the coefficients at the cases that produced them confirms the strength of the correlation (see Table V.8).

Valley City's outlay of $3,832 per pupil in its magnet schools not only ranked it first in total cost but also is related to its ranks of third in quality of integration and first in quality of education.** Under considerable pressure from the state to desegregate, Valley City invested comparatively high sums in staffing and equipping its magnet schools in order to attract a racially diverse pupil population. Its location in a northern industrial state was also a factor in increasing its costs. Located in a southern agrarian state, Steeltown incurred the lowest outlay

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* An earlier study (Chabotar and Sjogren, 1981) using the same mix of quantitative and qualitative data found no significant correlation between total cost and outcomes in the Research and Development Utilization Program (RDUP) sponsored by the National Institute of Education. Outcomes included extent to which schools incorporated a rational problem-solving process, extent to which problem was solved, and measures of personal and organization impact.

** Rankings relate only to the eight districts that participated in the cost study component of the survey of magnet schools. Of all 15 districts in the overall survey, Valley City ranked fifth in quality of integration and fourth in quality of eduction.

Table V.8

District Level Costs and Outcomes

	COST		INTEGRATION		EDUCATION	
DISTRICT	Total Cost per Pupil	Rank	Quality of Integration	Rank	Quality of Education	Rank
Valley City	$3,832	1	69	3	76	1
Old Port	3,734	2	66	5.5	67	6
Evergreen	3,279	3	66	5.5	68	5
Millville	3,026	4	74	2	72	2.5
Sister City	2,621	5	62	7	72	2.5
Foundry City	2,394	6	76	1	61	7
Clay City	1,785	7	68	4	70	4
Steeltown	1,609	8	49	8	59	8

of $1,605 per pupil and is ranked eighth and last on total cost, quality of integration, and quality of education.* Its magnet schools generally represented minimal adaptations of the regular school program and lacked the basic equipment and curricula associated with magnet programs in other districts. For example, its Law and Government magnet at Forest High had merely added a few civics courses to the curriculum and built a mock courtroom in order to justify its magnet status. The Dorsey High School in Steeltown was labelled a magnet school with a special academic focus but was in reality a comprehensive high school with severe equipment shortages.

INFORMATION ON FEDERAL FUNDING INSUFFICIENT TO ANALYZE EFFECTS ON LOCAL EXPENDITURES FOR MAGNET SCHOOLS AND QUALITY OUTCOMES

Finally, the fourth question about magnet school costs deals with whether federal funding affects the level of expenditures for magnet schools or the outcomes they produce. This question is difficult to answer in the context of this study for three reasons:

- ESAA grants constituted less than 5 percent of the total expenditures of the districts that received them;
- Only two of the eight districts that participated in the study did not receive ESAA funding; and
- Of these two districts, Valley City ranked first in total cost and quality of education while Steeltown ranked last.

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* Of all 15 districts in the overall survey, Steeltown ranked fifteenth in quality of integration and thirteenth in quality of education.

Thus, there is insufficient evidence that the presence of federal grants made a difference in the six districts that received them or that their absence made a difference in the two districts that did not.

POSTSCRIPT

In conducting our cost study of magnet schools, we reached several conclusions about the budget and accounting practices in education based on the eight districts that participated in the cost study and the seven that did not:

1. Magnet schools were not used as standard cost centers in any of the districts surveyed. Districts could not isolate their revenues and expenditures except in those cases where the school was a "full magnet" and totally occupied a regular school building. For "partial magnets," districts had no reliable and readily available means of knowing how much of the school's financial and human resources were expended on magnet programs and how much on non-magnet programs. Thus, for most of the districts that participated in the study, the estimation of magnet school costs required a painstaking reconstruction of budget and expenditure data on a school-by-school basis. Most of the districts that did not participate in the cost study cited their unwillingness or inability to engage in such reconstructions. The adoption of a program budgeting system which would account for the costs of special programs like magnet

schools would improve management's capacity to monitor and control costs and evaluate the cost-effectiveness of magnet school performance.

2. Even disregarding the magnet vs. non-magnet school issue, districts did not systematically account for the full costs of individual schools. In two instances, districts reported per-pupil costs which included only classroom teacher salaries, instructional supplies and materials, and purchased services. They omitted indirect costs like district administrative overhead, pupil transportation, utilities, and employee benefits which were deemed district level rather than school level expenses. This implied that pupils could be educated without incurring these indirect costs and thereby consistently underestimated the true costs of education. For example, one district reported a per-pupil cost of just under $3,000 when our own analysis which included both direct and indirect costs yielded an estimate of over $4,000 per pupil.

3. Regardless of the completeness or incompleteness of their cost estimates, some districts could not provide them historically. Either the records were missing or accounting practices had changed, rendering meaningless any multi-year comparison. Modern management practice suggests that fiscal records from prior years should be recast to conform to current accounting practices and thereby allow the kind of multi-year analysis which establishes trends and facilitates meaningful planning.

4. If the school districts contacted during the study were at all representative, it seems that most business offices have not taken full advantage of recent advances in computer technology. Routine budgetary and expenditure data were computerized but reported by object of expenditure, organization unit, and other inflexible categories which were not pertinent to a cost acounting system and could not be manipulated by local fiscal analysts. Both Valley City and Evergreen reported that completion of the cost data tables presented in Appendix V would require 80 person hours to complete because they would have to be done manually. For example, Evergreen could provide operating cost information about individual schools but claimed that its computers could not aggregate costs across schools to estimate total costs for selected line items. Others had expenditure data in one data file and enrollment/staffing data in another file and stated that they could not merge the files to produce unit costs because, as one business manager said, "the money information belongs to me and the enrollment counts belong to the attendance office down the hall."

CHAPTER VI

MAGNET SCHOOLS' RELATIONSHIP TO URBAN DISTRICTS AND COMMUNITIES

INTRODUCTION

Our analyses of magnet schools' effectiveness in improving the quality of education (Chapter III) and providing voluntary desegregation of schools (Chapter IV) indicated that how the school district, and its decision makers, use magnet schools in solving local educational problems and in meeting community interests to improve public education is critical to program success.

Our analysis plan called for an assessment of how urban school districts develop magnet school program objectives, strategies, leadership, and support to address local problems and issues. We conducted this analysis using a district program development model outlining district and community factors influencing magnet schools initiation, implementation, and effectiveness. This enabled us to trace how magnet schools are planned, organized, and shaped to meet local urban education problems.

The findings presented in this chapter are based on analysis of data from the 15 study districts using the program development model. The analysis provided three main findings:

1. A key to the success of magnet schools is effective district leadership in (a) developing magnet program objectives and (b) establishing a strategy for implementation.
2. District-level support of magnet schools and broad community involvement in magnet planning, design, publicity, and operations are essential to address district education problems.
3. Magnet school programs are effective in helping districts increase support for public education, improve the response to desegregation, and in raising teacher morale. However, new problems can be created by a district's failure to deliver on magnet promises.

In the following sections, we explain how the program development model was used in our research and, then, we discuss the detailed findings from the district analyses.

RESEARCH ISSUES

By reviewing existing magnet school research we identified five issues influencing the magnet schools' relationship to districts' concerns, objectives, and problems. They are:

1. Planning and program development. Previous studies questioned if districts had planning periods; if so, how long do they last and what activities did they encompass? ESAA magnet funds also were granted to many districts to plan magnet programs.
2. Parent participation. This was identified as being critical to the responsiveness of the programs to student needs and to the improvement of student performance. ESAA grant regulations required a parent advisory committee.
3. Magnet school location. How does the district plan location? How do location and neighborhood influence the school's attractiveness and the racial mix of

students? City politics in magnet school decisions also were included.

4. City population growth or decline and economic status. Urban demographics and the local economy are likely to affect the probability of continued support for magnet programs, or other education innovations.

5. Involvement. The degree of involvement by community businesses, higher education institutions, and cultural organizations surfaced as an issue because of previous documented examples of magnet schools benefitting from such relationships.

These issues developed from the original set of research questions and issues and were expanded as two predominant characteristics surfaced: First, locally-designed themes, curricula, and methods of organizing magnets vary greatly. Second, local school boards, administrators, teachers, parents and community leaders demonstrate creativity and ingenuity in adapting the magnet school concept to expressed community educational needs and concerns.

Previous magnet schools research provided only a limited view of the implications of school district and community interests, issues, and objectives for magnet schools. Studies of individual districts analyzed the participation and response of parents to magnet schools (Gittell, 1979; Levine and Eubanks, 1980), and several reviewed how magnets served to overcome urban educational problems (Levine and Havighurst, 1977; Willie and Greenblatt, 1981).

Several studies provide a broad view of the development of magnet programs through case analyses of single urban districts (Metz, 1982; Dentler and Scott, 1981). One national mail survey of magnet schools (Stanley, 1979) found that community participation was important in 60 districts that implemented magnet schools and that district objectives for magnets and the types of schools and programs varied widely across the districts.

Findings of the Pilot Study Focused the Research Questions

The pilot study and the Interim Report, completed in the first year of the study (Fleming, Blank, et al, 1982), extended and broadened our understanding of the relationship of district educational issues and community roles in magnet schools. Based on these findings, we identified several common factors creating community and district magnet school interest. These were:

1. Shifting or declining enrollment
2. History of desegregation issues and plans
3. Community perceptions of decline in quality education
4. Experience with alternative or special programs to serve target groups.

The pilot study findings also showed a relationship between the process by which school districts implement magnet programs and their subsequent effectiveness. Creative, resourceful program leadership, and consistent high-level district support were identified as critical to the success of magnet school programs. The results of the pilot study also showed that businesses, community organizations, and parent groups often are closely involved in developing and implementing magnet schools. But, we did not determine the degree of importance of their participation in the pilot study.

Based on the pilot study findings, the survey methodology was revised to include more interview and data collection questions concerning the district context and implementation process for magnet schools. The research objectives for this part of the study were focused to analyze:

- The specific relationship between the district context and the magnet program (i.e. What problems and issues lead to certain magnet programs, and what is the extent of benefit from different types of community involvement?)
- The effects of varying methods of magnet leadership and support in the process of implementation and magnet school outcomes.

MODEL OF MAGNET SCHOOLS RELATIONSHIP TO THE DISTRICT AND COMMUNITY

Survey results from the sample of 15 school districts operating magnet schools indicate there is a direct relationship between major district issues and problems, and the characteristics of the magnet school program. Recent events and changes in a district and community, local concerns with the quality of public education, and district methods of solving problems are key variables in the magnet schools operating environment. These variables also lead the magnet school program and determine the probability of its success.

To analyze and explain the critical points at which district and community issues, actions and involvements influence magnet schools, we developed the "Model of Magnet School Program Development". The model displayed in Figure VI.1 presents the three phases of development of a district magnet school program:

1. Initiation
2. Implementation
3. Effectiveness.

These three phases of development governed the data analysis on the 15 sample districts. Under each development phase three questions were asked:

a) What is the range of findings on the relationship of district and community factors to magnet program development?

b) How does relationship variation affect subsequent development phases and magnet program effectiveness?

c) How has the relationship affected magnet schools' success probability?

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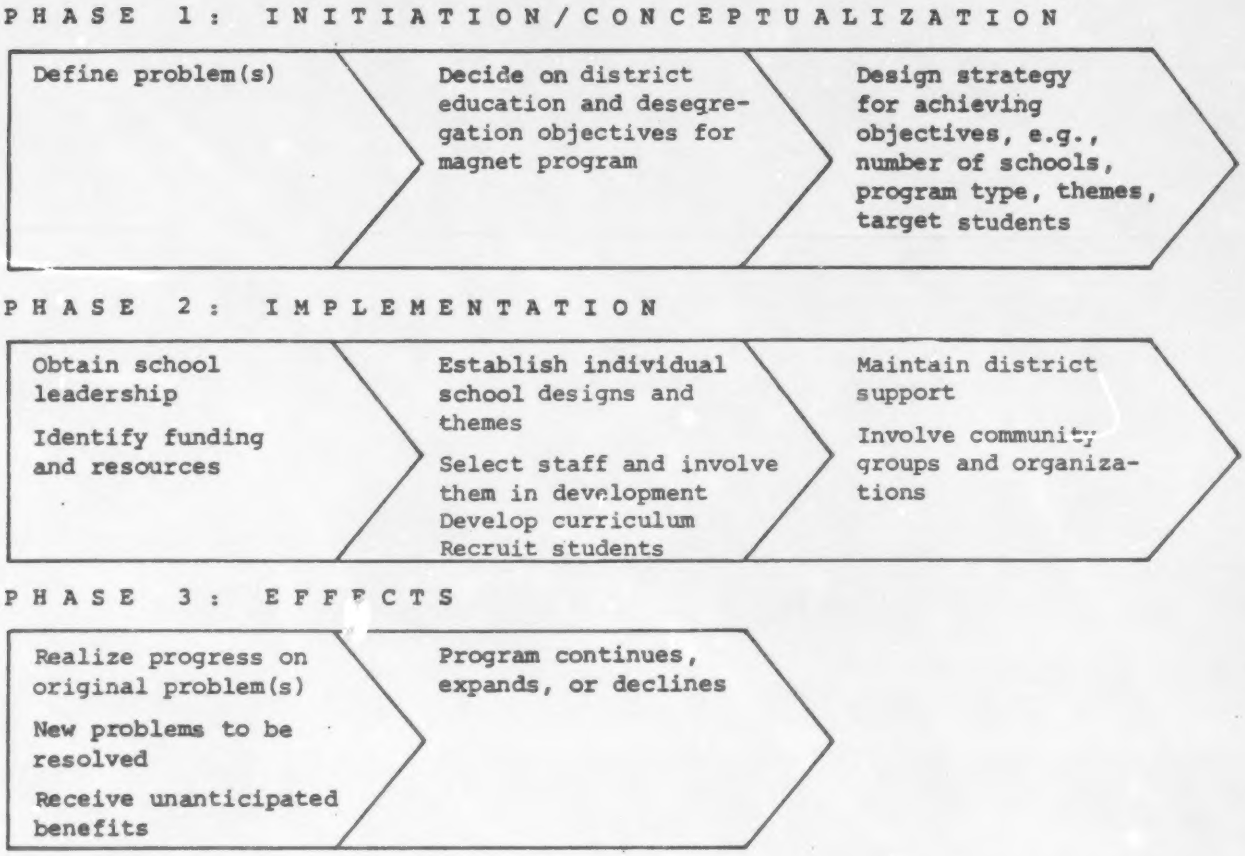
FIGURE VI.1

MODEL OF DISTRICT MAGNET SCHOOL PROGRAM DEVELOPMENT



PHASE 1: INITIATION/CONCEPTUALIZATION

Define problem(s)

Decide on district education and desegregation objectives for magnet program

Design strategy for achieving objectives, e.g., number of schools, program type, themes, target students

PHASE 2: IMPLEMENTATION

Obtain school leadership

Identify funding and resources

Establish individual school designs and themes

Select staff and involve them in development

Develop curriculum

Recruit students

Maintain district support

Involve community groups and organizations

PHASE 3: EFFECTS

Realize progress on original problem(s)

New problems to be resolved

Receive unanticipated benefits

Program continues, expands, or declines

The "Model of Magnet School Program Development" is based on the accumulated pattern from all of the districts studied. It is not a formula for success, rather it is a way to describe the process of magnet school development.

In the following paragraphs we describe the three phases of model development and report our findings based on the analysis of the 15 sites. Although the model does not depict all magnet development steps or all key points of relationships among the school districts, community and magnets, it does portray the elements common to creation, growth and evolution. Importantly, it serves as a means of analyzing the effects of interaction between district and community factors and magnet schools and testing a set of research hypotheses on the relationship of these factors. Finally, our analysis, based on data from the representative sample of 15 school districts, provides results that can be projected to the population of other urban districts with magnet schools.

PHASE 1: INITIATION

The first step in the model of magnet school development is to identify problems or issues that can be resolved by magnet schools, and to establish the magnet program objectives. Our basic analysis question is: How are school district problems and issues defined in terms of objectives for magnet schools?

A. Defining District Problems

A typical urban school district has, at any one point in time, a range of problems to deal with, (e.g. building or closing schools, responding to the changing demands of parents and needs of students, and balancing the budget). Many problems, (e.g. declining enrollment, desegregation of schools, and improving the quality of teaching staff), persist through the years. District leaders, including school board members, administrators and parent leaders, may develop and support policies specifying different ways to address a persistent problem issue, (for example, many urban districts try to decrease school-leaving rates through vocational education, counseling, work study, alternative schools, social workers, remedial education, career education, experience-based education, and extra-curricular activities).

A specific eduational innovation or approach typically is developed and implemented in response to new or persistent problems. The approach or innovation is tried based on:

- Quality and appropriateness
- Immediacy of the need for solution
- Interests and arguments brought to bear.

Although each may contribute to a decision they are of varying importance to the actual decision for a new educational approach or program.

We analyzed district decision-making from interview data collected from decision-makers (board members, superintendent, community leaders) and those affected by decisions (administrators, principals, teachers, parents, students), and from review of proposal and planning documents. Although we cannot depict all the variables that enter into a decision related to magnet schools, we can identify those key factors in initiation decisions and the steps taken as a result of a decision. Our comparative case methodology allowed analysis of the factors and steps across the sample*.

The first identifiable trend in cross-case analysis of the 15 districts is the similarity in district problems. Consistent with our pilot study findings, the three basic problems that lead to interest in magnet schools are:

1. Resolving an historical desegregation problem
2. Concern with the declining quality of education
3. Declining or shifting enrollment in the district.

All 15 sample districts identified one or more of these three basic problems as leading to the decision to establish magnet schools. No other problems were identified as being related.

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* Exhibit VI-1 (Appendix VI) arrays the major elements in magnet Initiation (problems, objectives, strategy, decision makers) by the 15 sample districts. This serves as the basis for analysis of the Initiation phase.

B. Deciding Magnet Program Objectives

Comparative examination of the magnet program objectives related to these problems, shows considerable diversity in types of objectives. Specific local concerns contribute to the use of magnets in treating one or more basic problems. By grouping similar objectives across districts, six major types of objectives for magnet school programs emerged:

1. Reduce declining enrollment by holding students in the district
2. Offer educational alternatives, or options
3. Improve the academic quality of district education
4. Provide a voluntary desegregation plan for the district
5. Desegregate specific schools or areas, or "focused desegregation"
6. Provide voluntary options to the existing mandatory desegregation plan.

Each of the 15 sample districts expressed at least one of these objectives and most stated two or more objectives contributed to the decision to initiate, and to the type of program that would be developed. For example:

Two districts, Old Port and Clay City, created magnets to offer educational alternatives to students (while maintaining a desegregated student body). Three districts (Sister City, Evergreen, and Paradise) defined the objective of offsetting declining student enrollments through the attraction of a magnet school choice. The objective of improving academic quality in their districts through magnets, usually with an advanced or college preparatory type of program, was specified in five districts (Millville, Starville, Sunshine City, Regional City, and Steeltown). Three districts established both the objectives of maintaining student enrollment and *improving academic quality* (Valley City, Midtown, and Centerville), with the combination of these two objectives having differing effects on the magnet programs, as examined below.

Two of the three *desegregation objectives* found among the 15 sample districts are consistent with previous research findings as to why districts enter into magnet programs: *districtwide improvements* and *voluntary options*. An optional school choice, within an existing mandatory plan, was the objective in four districts (Midtown, Centerville, Clay City, and Paradise). Using magnet schools to provide a voluntary desegregation plan districtwide was an objective for the Foundry City, Valley City, Sunshine City, Evergreen, and Rivertown districts. *The third objective*, found in five districts (Millville, Steeltown, Starville, Sister City, and Regional City), was to *focus the location of magnet schools in areas, or schools*, that were not successfully desegregated previously. These districts decided to use the magnet concept to bring about desegregation in areas where previously it had been difficult to attain. Each had a history of desegregation plans and methods, but saw in magnet schools a means of desegregating a part of the district. Other methods of desegregation generally continued for other schools and areas.

District leaders defining magnet objectives must *consider* the local interests, *emphasize* the elements of the magnet concept that best fit the needs (i.e., type of program, special theme, target students), and *determine* the number of magnet schools required to respond to persistent efforts to desegregate and design innovative curricula. District objectives reflect the ordered priorities for change and are expressed in plans for adapting the magnet school concept to needs and interests.

To fully analyze these factors entering into the district plans for magnet schools, we considered the district's strategy for magnet program development and how decisions for magnet program strategy, objectives, and plans were reached.

C. Designing Magnet Program Strategy

There is wide variation among the 15 districts in program strategy and its development. Some districts had minimal strategy development from the standpoint of considering program size, school types, themes, locations, or coordination with other schools and programs in setting objectives. Their magnet program moved from the objectives stage to individual implementation with minimal central direction. Other districts had elaborate plans and implementation schemes, based on a districtwide plan.

By comparing district objectives with strategies and strategy development we determined how districts approach program development given their objectives, and how development efforts contributed to effectiveness.

Five dimensions enter into the strategy approach, as follows:

1. Size of the program (number of schools and students)
2. Type of magnet schools (total school, part-school, full-time or part-time)
3. Location
4. Themes
5. Target students

These dimensions were organized either as "broad" strategy or "limited" strategy:

- Broad strategy. The district attempts to obtain a large number of magnet schools, spread across the district, to increase program use and availability. The concern is with magnet location, theme, and target students in order to increase student involvement and to balance racial composition.

- Limited strategy. The district focuses on developing magnet themes, targeted students and schools for specific purposes. The program usually is small and the location typically defined by the purpose.

The matrix of objectives and strategies (Table VI.1), illustrates that the sample districts' limited or broad strategy depended on their objective of implementing a voluntary desegregation plan. Five of the six districts with a broad strategy had the objective of a voluntary desegregation plan. The other major grouping is the four districts with a limited strategy to improve academic quality and to provide focused desegregation.

Leadership and Support: A Critical Variable In Strategy

The magnet strategy's influence on subsequent program development and operation, is affected as well by how the strategy is reached (i.e., who participates and what consensus is attained). This variable extends the analysis to include who is involved in establishing program objectives and strategy as well as what is to be accomplished and how.

TABLE VI.1

DISTRICT MAGNET PROGRAM
OBJECTIVES AND STRATEGY

DISTRICT OBJECTIVES	Program Strategy	
	Limited	Broad
1) Education Options	Old Port	
2) Education Options, Vol. Deseg. Options	Clay City Paradise	
3) Academic Quality, Education Options, Vol. Deseg. Options	Centerville	Midtown
4) Academic Quality Focused Deseg.	Millville Steeltown Regional City Starville	
5) Education Options, Focused Deseg.	Sister City	
6) Academic Quality, Vol. Deseg. Plan		Valley City Sunshine City
7) Education Options, Vol. Deseg. Plan		Evergreen Rivertown Foundry City

The pilot study determined that leadership and support were critical to magnet school effectiveness. The analysis of educational quality and racial integration in magnets showed that district and school leadership and district support are critical. Leadership and support for the magnet program objectives and strategy become established in two ways: a) building a policy consensus, and, b) inviting broad participation. We next examine these two steps in program initiation and strategy development.

Analysis of District Leadership Policy Consensus

The degree of policy consensus among the district's central leaders (the school board, superintendent, and top administrators) is critical to magnet program initiation and to subsequent decisions. Lack of consensus can lead to risks. For instance, at the point of decision making on district strategy a lack of consensus is likely to result in some strategy aspect (e.g., school locations, themes, or student targets) continuing to be questioned as development progresses. It can delay funding, principal or staff selection, or other critical program factors. And, it can cause the magnet program to be viewed with less certainty by the public.

High consensus means board members and top administrators

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share an idea of where the program is going, what and how it should be accomplished. This consensus is enabled when all leaders have a role in the strategy process and negotiate key strategy elements. Consensus particularly is critical during the early stages of gaining program publicity, recruiting students and staff, selecting schools, and maintaining consistent programs and future policies.

Table VI.2 displays a matrix of the 15 sample districts program strategy by the level of district leadership consensus.

Districts with low leadership consensus on district policy have two common problems: minimal effects on district education problems and difficulties with the program's central direction. Centerville, Clay City, Paradise and Sister City have only a few magnet programs, but they have diverse themes and differing levels of effectiveness. Their schools tend to be products of interest groups who obtained some top support for the types of magnet advocated. Two districts, Centerville and Midtown, had differing educational objectives of improving academic quality and offering options which were supported by different groups. Magnet schools were allowed to progress with relatively minimal strategy development or resolution of the implications of these objectives.

All the districts with low leadership policy consensus had relatively minimal development of magnet program strategy; the magnets were viewed as individual school efforts. In some, the

LEADERSHIP POLICY CONSENSUS AND COMMUNITY/STAFF PARTICIPATION IN MAGNET PROGRAM STRATEGY DEVELOPMENT

LEADERSHIP POLICY CONSENSUS	Program Strategy	
	Limited	Broad
Low	Centerville Clay City Paradise Sister City Steeltown	Midtown (Original) (High Later) Valley City
High	Millville Old Port Regional City Starville	Evergreen Foundry City Rivertown Sunshine City

COMMUNITY/STAFF PARTICIPATION	Program Strategy	
	Limited	Broad
Narrow	Centerville Clay City Paradise Starville Steeltown	Evergreen Valley City
Broad	Millville Old Port Regional City Sister City	Foundry City Midtown River City Sunshine City

individual magnets are educationally effective (as shown by our educational quality ratings), but district objectives are not accomplished. Valley City's broad strategy, related to its desire to have a magnet-based voluntary desegregation plan, failed primarily due to the lack of top district-level consensus; after three years a mandatory plan was implemented.

Low leadership consensus also contributed to the questionable support for magnets. Annually these districts discuss and reevaluate the magnet program, its effectiveness and accomplishments. Board members and administrators must be reconvinced of the program's value in order for continance. One exception to this pattern is Midtown, which gained consensus for its magnet strategy about three years after initial development. This occured when a new superintendent and top administrators were convinced of the magnet's value both for desegregation and quality of education improvements. Now, the board and administration consistently support the program; it has expanded each year for four years.

The eight districts with *high central leadership consensus* experienced varying degrees of program success. However, *five of the six top districts, on our ratings of magnet educational quality, had high consensus among their leadership on objectives and strategy*. The important measure for these districts may be that all eight have consistent support for the magnet program and generally strong program leadership. The programs are perceived as likely to continue by both district personnel and the community.

Community and Staff Participation in Strategy

To the extent district leaders seek participation from principals, district and school staff, parents and community leaders, they increase the likelihood that the program will be well received and will gain support and involvement in the early stages. When board members, the superintendent, or top administrators limit magnet strategy participation, the program is perceived as appealing to narrow interests, and is not supported. The public relations (including publicity) benefits of magnet schools also are hampered by narrow strategy decisions.

Community and staff participation in program strategy development differed among the sample districts. For eight of the 15 districts, community or parent representatives actively participated and district staff was involved in planning the overall program.

Narrow participation in strategy development does not mean there is no community or staff involvement. Rather, the program is the result of select involvement by interest groups within the community or staff. The magnet programs in

Centerville, Clay City, Paradise, and Starville resulted from small interest groups, generally middle-class, professional parents, who had an active role in convincing board members and administrators to develop a particular type of magnet school or program. Steeltown's program almost entirely resulted from a few board members and the superintendent deciding on the magnet program, themes, and school locations. The Evergreen and Valley City districts had community representation through advisory committees for their district-wide desegregation plans. Neither of these districts' magnet program strategies was based on broad input from the community. The idea of a magnet school program was a committee compromise; involvement beyond the initial idea for the program was limited.

The seven districts, characterized as having narrow participation, generally have a program planned and developed by a few central staff and board members. It then is implemented by the schools. Both central and school-level staffs, which eventually became active in operating the program, typically was minimally involved in developing program themes, selecting locations, or targeting students. Any staff involvement at this stage was on an individual basis between program initiators and staff, (e.g., Starville). School staff often view this development approach as "having the magnet imposed on them". Among district central administrators, the magnet program is typically viewed as special or temporary, and is outside the normal district administrative systems and regular instructional methods and procedures.

Steeltown and Starville were not as successfull in accomplishing their "focused desegregation" objective, partly because of a narrow-participation approach to development strategy. Significant districtwide community and staff interest in magnets was not developed in these districts.

Districts with limited participation from community and staff are mainly those with "educational" and "voluntary desegregation" options objectives. The program strategy, and methods of developing strategy, reflected the goal of seeking alternatives to current district education and desegregation methods. Thus, the objectives and strategy reflected narrow and specific interests of the community and district leadership.

Program strategy development in districts with broad community and staff participation was a process that would lead to program support and involvement. These districts typically had objectives of a voluntary desegregation plan, focused desegregation, or educational improvements. Positive public relations generally were started before program implementation.

Often district and school level interests were surveyed and the concept was promoted through many community and staff meetings. To gain participation and support, community and staff program interests were stressed. For example, for

Foundry City, River City, and Sunshine City leadership to accomplish their primary objective of districtwide voluntary desegregation, high visibility was necessary within the community and school staff. Midtown attained a high level of participation in magnets to meet their objectives of options to the mandatory desegregation plan and quality academic programs through community publicity and business and non-profit organization support.

Districts with limited program strategies were aided in meeting their objectives through broad participation. Millville, Regional City, and Sister City had the objective of "focused desegregation." Each improved the racial/ethnic composition in the target schools or areas through magnets. Extensive community and staff participation in early strategy and planning development aided. Sister City had a low consensus of support from the district leadership, however high participation by the communities and staffs where the magnet schools are located was the key to success for two of the three magnets studied.

Broad participation is particularly important with "focused desegregation" or "district desegregation" objectives because typically the magnet program is used to transform existing schools with a part-school or total-school program. This involves new curricula, students, and often staff.

PHASE II: IMPLEMENTATION

A district's approach to implementation of the magnet program in the designated school buildings is likely to determine program effectiveness in meeting objectives for quality education and desegregation. Our implementation analysis is designed to assess the relationship between program direction and coordination and school-level magnet effectiveness as well as the relationship between community participation and magnet effectiveness.

A. Strong Leadership a Key to Magnet School Implementation

We collected data in each district on the leadership roles of district administrators, principals, teachers, parents, and community organizations in implementing the district strategy in magnet schools. Because field researchers conducted interviews with a broad range of school and community respondents, our assessment includes several leadership perspectives. From the interview data, we rated leadership across six major steps of new program implementation as follows:

- Obtaining new or additional funding
- Theme selection for the magnet
- Design and planning

- Curriculum development
- Staff selection
- Authority over program operation

For leadership ratings see Exhibit VI-2. Ratings were used to develop a composite of the method each district used to provide leadership in the implementation process.

Our questions included:

- Do magnet schools have strong, resourceful leadership throughout the implementation process? If so who provided it?
- How is magnet leadership related to the district strategy for magnet schools (i.e., does individual magnet leadership overcome inherent problems in district level strategy and support, or does magnet leadership tend to reflect the pattern established at the district level)?

In Table VI.3 the predominant method of magnet school leadership is categorized by the level of district leadership consensus during the Initiation Phase.

We narrowed our analysis of implementation differences to district staff vs. principal. We include in district staff the position of "magnet director," which was a designated staff position in 50% of the districts we surveyed (often made possible by federal funding). In other sites, district staff typically filled the same role without the title. School board and superintendent roles, typically shared with staff during implementation, were fairly constant across the 15 sites. Generally they obtained funds and assisted in selecting

TABLE VI.3

IMPLEMENTATION LEADERSHIP FOR MAGNET SCHOOLS

LEADERSHIP CONSENSUS	Dominant Magnet Implementation Leader			
	Principal	District Staff	Shared	Unclear
Low	Midtown Valley City Sister City	Steeltown		Centerville Clay City Paradise
High	Evergreen	Millville Old Port Startown (2) Sunshine City	Rivertown Regional City	

themes. After program initiation, top leadership typically delegates most tasks to district staff or principals and teachers.

Four of the 15 districts had strong principal leadership patterns. In these districts, the magnet schools' design, staffing, curricula, and theme were largely the responsibility of the principal. Where district leaders participated, it mainly was to initiate the concept. Any unique, special, or improved education that evolved in the school was the result of principal-led efforts.

Six of the districts implemented their magnet program in the schools through the leadership of district-level staff. Usually, the key person was an assistant superintendent or magnet school director assisted by curriculum supervisors. The district administrator typically supervised the selection of a theme, design of the staffing and student selection procedures, curriculum development, and development of community resources for the program. School level staff often participated in the process of implementation, but the leadership and coordination was maintained by district staff.

Two of the districts, Rivertown and Regional City, had leadership shared between a district administrator and principal and school staff. In these districts, strong initial leadership of the overall program was given by a central administrator who supervised the process until staffing and curriculum development, then the principal assumed leadership. Leadership apparently was shared in a non-conflicting manner.

Three districts have unclear leadership or mixed leadership patterns. In these districts, neither central staff nor principals led the magnet implementation. Decisions were made by different leaders; these varied by school, issues, and time period. Teachers in the magnet schools did not cite either a principal or district staff person as critical to the program.

The distribution in Table VI.3 shows that districts with less consensus among the district leadership, concerning program direction and purpose, tend to have principal-led magnet schools. Likely there are two reasons for this pattern:

- District leadership may not provide strong direction, but they may permit principals to "run with the program" if they so desire;
- A district may have entered into the magnet program without total agreement among school board members and top administrators on objectives and the program may not be a high priority for all.

B. Involvement of School Staff in Implementation

A question closely related to implementation leadership is: What is the role of magnet school staff in planning, organizing, and developing the program?

SCHOOL STAFF INVOLVEMENT IN IMPLEMENTATION

IMPLEMENTATION LEADER	Level of Staff Involvement		
	High	Average	Low
Principal	Valley City Sister City Evergreen	Midtown	
District	Old Port Sunshine City	Millville Foundry City	Steeltown Starville
Shared		Rivertown Regional City	
Unclear		Centerville Paradise	Clay City

In our analysis of quality education at magnets, we found a strong relationship between magnet staff and quality educational outcomes. This section discusses how districts and schools involve teachers, counselors, and other school level staff in the process of developing and implementing the magnet. Analysis is based on organizational research showing that staff participation in program innovations leads to higher quality participation and higher program commitment.

The cross-tabulation of level of school staff involvement by type of leadership (Table VI.4) provides an implementation/involvement analysis. The pattern, across the 15 districts, is for those magnet programs led by principals to have greater school-staff involvement. Magnet schools with leadership that is district-led, shared, or unclear tend to have a less consistent pattern of involvement. Three of four districts with strong principal leadership have high staff involvement. Programs led mainly by district staff have varying levels of school staff involvement, while the shared leadership pattern is related to average staff involvement. Unclear implementation leadership tends to produce average to low staff involvement.

These results respond to the question: How is innovation influenced when it reaches those who are most directly affected by the innovation? Teachers, counselors, and other staff must provide the direct contact with students in magnet schools; must integrate the theme-based curriculum into their method of teaching; must relate to other staff members; and must organize information and resources for instruction. If the magnet program from the outset has the active involvement of the staff most directly affected, the chances of their willing acceptance of the innovations are increased.

Some districts and magnet schools developed procedures to ensure active staff support and commitment to the magnet concept following implementation. These procedures include staff selection, in-service training, and frequent magnet staff meetings. However, the degree to which a district demands program implementation with initial active staff involvement will strongly indicate what will happen after the program is operational. The initial steps in program organization also set the pattern for leadership-staff relations that typically are continued through the program.

Staff interest, commitment and involvement are critical both in producing positive student outcomes and in having the school perceived by students and parents as a unique and special program, which improves student attitude and motivation. One way to obtain committed magnet staffs is to provide them with an indication of their influence on program success.

Additionally, there are different methods for obtaining staff involvement. Several schools literally were produced from staff ideas, initiative, and organizational efforts (e.g., the Performing Arts Magnet in Sister City Granite High, Evergreen's Nathan High Communications Magnet, and the Arts Magnet in Old Port). Other districts selected staffs who pledged to take initiative in developing the program (e.g., the Sunshine City, Rivertown, Valley City and Millville districts). These districts' and schools' policies regarding magnet staffs significantly aided in developing and continuing effective programs.

C. Importance of Consistent District Level Support

An important issue for magnet implementation, and continued, effective operation is the consistency of high-level support from district leaders. Magnet schools may be developed initially as an exciting public education innovation. Staff, students, and parents may share the high expectations for a new educational opportunity. However, if an innovative and unique program does not receive consistent district support (i.e., funds, staff, resources, and attention) for its unique needs and charactertistics, it either will not survive or its innovative and magnetic role will be diminished.

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Other important issues include the relationship between who provides leadership and who continues district support; and whether the district's strategy affects continuation of support?

Table VI.5 cross-tabulates district characteristics that are directed to these issues. Two of the four districts with principal leadership maintained high district support. Five of the six districts with district staff leadership have continued good support from boards and superintendent, and the two shared leadership patterns have high support. Predictably, districts with unclear leadership have low or mixed support from the top leadership.

There is a strong relationship between the original district strategy for magnet schools and continued leadership support. Of the six districts with a broad strategy (Midtown, Evergeen, Valley City, Foundry City, Sunshine City and Rivertown), all but one continue with consistently high support from the school board and superintendent. Valley City did not have a high consensus on strategy and the broad strategy for a voluntary desegregation plan failed. Three of the districts with strong continued support have a voluntary desegregation plan largely based on magnet schools, and undoubtedly this motivates district leadership to be highly committed to magnet schools as an option to a mandatory desegregation plan.

TABLE VI.5

CONSISTENCY OF DISTRICT-LEVEL SUPPORT OF MAGNET SCHOOLS

	Consistent District Support		
IMPLEMENTATION LEADER	LOW	MIXED/INCONSISTENT	HIGH
Principal		Valley City Sister City	Midtown Evergreen
District Staff		Steeltown	Millville Old Port Starville Foundry City Sunshine City
Shared			Rivertown Regional City
Unclear	Paradise	Clay City Centerville	

	Consistent District Support		
PROGRAM STRATEGY	LOW	MIXED/INCONSISTENT	HIGH
Limited	Paradise	Clay City Centerville Sister City Steeltown	Millville Old Port Starville Regional City
Broad		Valley City	Midtown Evergreen Foundry City Rivertown Sunshine City

Possibly of more interest are the *districts with limited program strategies, but with high district-level support*. Four districts (Millville, Old Port, Starville, and Regional City) have support from superintendents and school boards. These districts' programs are small relative to district size in enrollment and number of schools, yet the staff, parents, and students say the district leadership has continued strong support.

A common factor is an initial and continuing role of the superintendent as a strong leader and supporter. These districts had an active superintendent in the original strategy and design development of the magnet school program, who continued to be a strong supporter, (Millville changed its superintendent within weeks before our visit, and magnet principals and staff were apprehensive about possible change in top-level support).

Another *factor in the districts' strong support* may be the perceived *effectiveness of the magnet programs*. In each of the four districts with high support, district publicity concerned the success of the magnets relative to their original objectives, (i.e., improving academic quality and focused desegregation). These schools are well-known "success stories". Districts with less consistent support may have had some success with their magnet schools, but there was not a high level of publicity or acknowledgement of success. For example, two Sister City magnets were rated as quality education programs but few district respondents noted their success as different from other schools. Additionally, Sister City now has continued problems in balancing school racial composition in several other schools; magnet strategy is being questioned.

D. Community Involvement in Magnet Schools Implementation

Community resources can be valuable in implementing magnet schools. In our tabulation of leadership roles in magnet school implementation (Exhibit VI.2), we noticed variation in the degree of involvement of the community across the five indicators. Community resources were defined to include parent groups (formal or informal), local business organizations or individual corporations, nonprofit education and cultural organizations, and higher-education institutions. We grouped the various forms of participation and assistance under "community involvement" because the two critical issues are, first, the effects of community participation on all magnet schools, and second, the community linkages stimulated by magnet schools.

In our pilot study design, community involvement was defined narrowly in terms of types of involvement that are normally found in public education. For example, we tested the degree of participation of parents in PTA, volunteer and advisory committees, and the degree of parent satisfaction with the program. We also asked if any businesses or higher education institutions had assisted with designing of magnet curricula or instructional methods. Pilot study results showed that, in fact, magnet school programs tend to stimulate _new kinds of community involvement_ in public schools. Thus, the analysis of the role of the community in magnet schools should be directed to the differences between districts and _not_ to the differences among schools within a district. In the survey of 15 districts, we broadly viewed the types of community involvement and the methods of assistance in order to document those innovations.

Table VI.6 provides a matrix of the types of community involvement in magnet schools in the survey sample. The five categories of involvement were created after the range of linkages between magnet schools and community parent groups, and private, public, and nonprofit organizations was determined. Data analysis revealed the following concerning each category.

1. Magnet Schools Stimulate Community Involvement

In every district the magnet school program stimulated some degree of new public school involvement by the community.

TABLE VI.6

COMMUNITY INVOLVEMENT IN MAGNET IMPLEMENTATION

DISTRICT	Design/Curriculum Development	Public Relations/ Recruiting	Direct Instruction Role	Indirect/Support Role
Millville	Parents group supported arts magnets District-wide interest survey Medical college faculty assist with health/ science design	High media publicity on magnet objectives/success Community orientation meetings	Professional arts specialists Community theater, college theater, opera Medical college faculty at health/science magnet	Internships at hospitals, public health centers Off-campus arts classes, special events District-wide advisory committee
Steeltown	No links	No links	No links	Advisory committee to Law and Government program
Foundry City	School-based proposals for magnets directly involve parent groups	High parent/community recruiting and planning in neighborhoods High media publicity	High volunteer involvement of college faculty in arts and academic magnets Arts organization: artists-in-residence	Corporate funding support Foundation grants Businesses: student internships
Centerville	Informal advocacy by white, middle class parents	No active publicity through community links	No involvement	Trips to colleges Informal ties to arts groups and institutions for events
Clay City	Parent interests developed traditional and alternative magnets Youth performing arts center assisted with arts magnets	Parents informally recruit for magnets	Apprentice and career programs with businesses at alternative magnet	Performing Arts Center shares staff and resources Community arts groups linked
Starville	Strong involvement of professional/middle class parents in magnets initiation	No community role	No direct role	No indirect support

COMMUNITY INVOLVEMENT IN MAGNET IMPLEMENTATION

DISTRICT	Design/Curriculum Development	Public Relations/ Recruiting	Direct Instruction Role	Indirect/Support Role
Midtown	Parents groups encourage principals to develop magnets Medical college aid in design of health/science magnet	Ford Foundation grant for marketing magnets Corporation-loaned executives to design marketing plan Wide media publicity Parent/student recruiting of others	University lecture series organized by parent advisory group Guest artists classes in arts magnet	Adopt-a-school with businesses, churches, non-profit organizations Parents fund-raising Community arts organizations resource for magnets
Old Port	Community non-profit education organizations led magnet development -- arts and harbor magnets Parents groups active	Public relations advanced through community organizations Assist with recruitment	Non-profit organization staff are part-time and full-time adjunct faculty	Foundation grants through cooperating non-profits Use of facilities, resources and space of non-profits Corporate support
Valley City	University professors helped develop and design magnets Magnet advisory committee of business/university/government representatives active in selection	Arts/Business/Government advisory group increase publicity for arts magnet	University professors and judges guest lecturers in public service magnet College credit for computer courses	Regular field trips to community agencies University evaluation study of magnets
Sister City	Parent/neighborhood organizations active in advocating and design of magnets	Recruitment through parent/community activities Positive media publicity	Professional artists and community arts groups part of curriculum Apprentice and internships in arts-related organizations	Parent volunteers and support role active Foundation grants locally Local corporation funds

COMMUNITY INVOLVEMENT IN MAGNET IMPLEMENTATION

DISTRICT	Design/Curriculum Development	Public Relations/ Recruiting	Direct Instruction Role	Indirect/Support Role
Sunshine City	Industry advisory committee for each theme magnet Universities aid in design	Community Advisory Councils aid recognition and publicity of magnets Positive publicity on magnets	Internships in industry Universities active with science and arts magnets Lectures, seminars, trips, Specialist volunteers	Community Advisory Council (parents, scientists, industry) Active parents groups recommending to board
Evergreen	Districtwide advisory committee on magnet plan Parents advocacy group assist with design of alternative magnet	Parents informally assist with recruiting Formerly, high publicity	College staff assistance with communications magnet Local radio-TV professionals give seminars	Business funding for communications magnet Business/union/ college advisory council to communications magnet City arts, cultural institutions used as resources
Rivertown	Local school advisory council District committee to advise magnet themes/ placement	Chamber of Commerce's partnership in education project involves business, industry, university organizations in magnets High publicity on magnets from many sources	Universities and business assist with special classes and career experiences Volunteer specialists from many organizations	Funding support thru Chamber of Commerce project Friends of the arts -- arts magnet support in and dollars and resources
Paradise	Parent interest groups (alternative and fundamental education interests)	No wide publicity	One magnet adopted by a local business -- assist with instruction in science, engineering careers	Formerly, parent groups but has declined
Regional City	Parents and school communities assisted in planning	Chamber of Commerce publicly support magnets (key power group) Parents aid with recruiting	Active parent volunteers assist in schools and prepare special events	Chamber of Commerce adopt-a-school Parent groups fund raise

The nature and the purposes of magnet schools produce new and varied parental, business, and organizational participation and support.

2. Broad Range of Community Organizations and Groups

Magnet schools can promote a wider range of the types of community involvement than can most non-magnet schools. In districts with a high degree of community involvement (i.e. Midtown, Rivertown, and Sunshine City), parent groups, local businesses, universities, and cultural and nonprofit organizations are involved in magnets. In a few districts, magnet schools promoted only strong involvement from one specific group, such as parents; but, where community involvement goes beyond strong parental advocacy, there was a broad range of community linkages with magnet programs.

3. Variety of Functions of Community Involvement

There is a variety of functions performed by parent and community groups in magnet school implementation and operation. Our view, going into the study, was that magnets improved parent participation in school activities and volunteer support, and drew in special lecturers and performances from universities, colleges, and local cultural organizations. This view was broadly expanded, as we found that community involvement influenced magnet programs in virtually every way. For example, in six of the fifteen districts, the program design and curricula for magnet schools were affected by advisors comprised of parent groups, university specialists, business and industry, or community nonprofit organizations. Generally, the advisors' interest was gained through the relationship of their specialty to the theme or their parental interest in the magnet school.

Community involvement in publicizing, marketing, promoting, advocating, and recruiting for the magnet schools was found in 10 of 15 districts. An outstanding example is Midtown where local corporations loaned two marketing executives to the district to assist them in designing and implementing a marketing plan to attract more students and parents to the magnet schools. Generally, community organizations involved in an instructional or support role for the magnet and district also helped to publicize and recruit for the program. Typically, community roles in magnet publicity are coordinated through a district or school-based effort designed to create greater public recognition and interest in magnet schools.

Community groups and organizations provide a direct role in instruction. Community resources such as college and university professors, community organizations, and arts institutions support the magnet staff in instruction, or representatives provide instruction. Specialists are used to provide the best possible instruction in an area, (e.g. judges, police officers, and lawyers teach students about the judicial system). Magnet schools bring the unique teaching resources of a community into the classroom, or take the students to the resource, as part of their regular curriculum. Some community professionals became part-time or adjunct staff to the magnet in cities such as Millville, Valley City, and Old Port. The important finding is the regular and systematic pattern of community involvement in magnet schools that continues to promote involvement as a matter of course and as a planned part of the curriculum.

Another significant community function is an indirect instructional role or a support role for the school. This possibly is the most frequent point of contact between the magnet and parent and community groups. This category includes adopt-a-school projects, parent and organizational fund raising, foundation grants, parent volunteers, sharing of facilities and equipment, field trips, ongoing advisory committees to districts and schools, student internships, and many other forms of supplementary assistance.

Almost every district attributed part of the reason for continuation and effectiveness of its magnet schools to the community support function.

The frequency and degree of community linkages through the instruction and support functions are due to three magnet school characteristics:

1. The voluntary aspect of student enrollment and parent choice;
2. The unique theme and curriculum of the magnet that draws the participation of organizations, businesses and volunteers seeking a way to be involved with public education;
3. The district and school's strategy and effort to make the program different by seeking and attracting community resources.

Community involvement is a planned and sought-after element that may not only allow it to survive, but also will enrich it by opening the educational process and making it interactive with the environment of the school and the students.

4. Active District Outreach Increases Community Involvement

Magnet school programs produce a higher degree of community involvement, in several areas of public education, than previously existed in the communities. But, our data also indicate considerable variation in the extent of the community's role in magnet schools. The question is: Why does community participation vary across the functions and types of groups and organizations involved? Is there a relationship between district strategy and activities with the magnet program and the degree of community involvement?

One dimension of the relationship between district actions and the level of community involvement is the role of the district program strategy. The type of district program strategy is related to the degree of community participation in generating publicity, and wider public support, and in recruiting for magnet schools. Of the six districts identified as having a broad program strategy, four (Midtown, Foundry City, Sunshine City, and Rivertown) have had high levels of community and parent involvement in program design, public relations, and recruiting (the first two functions categorized in Table VI.6). Of the six districts, four have been most successful in accomplishing their objectives under a broad strategy. Evergreen and Valley City originally had a broad strategy for the magnets related to their desegregation plan, but both districts have had less community involvement in publicity and recruiting as their objectives have changed. Community involvement in these districts has become a product of individual schools' initiative and outreach.

Among the nine districts that planned a limited strategy for their magnet program, four (Millville, Old Port, Sister City and Regional City) have had a high degree of community participation in design, publicity, and recruiting. These districts have developed a small number of magnet schools in specific locations to improve the quality of education or to offer options, and they defined active community involvement as an integral part of the program. Each of these districts developed their magnets from the assumption that representative parent and community groups should be brought into the process and their involvement would positively benefit both the district program objectives and the magnets' educational and desegregation goals. As a result, magnets were developed with the district and schools seeking to gain broad parent and community participation in the magnet schools. In these districts the community role has included active involvement in design, publicity, and recruiting.

The other five districts with limited program strategies have not sought or realized extensive community involvement in program design, publicity, or recruiting. Four of these districts (Centerville, Clay City, Starville, and Paradise) designed their magnets with assistance from specific parent interest groups, (i.e. upper middle-class, professional parents and those who desired fundamental, advanced, or alternative educational programs). Because these programs were designed for narrow interests, broad community publicity would defeat their purpose and potentially would prove embarrassing or damaging to the district. The fifth district with a limited strategy (Steeltown) did not develop a plan for community involvement or publicity; it viewed magnets as a means of moving students from one school to another. The leadership focused district staff efforts on recruiting students for that purpose, and tried to hold down public attention concerning the magnet program.

5. Magnet Education Enrichment Through Community Involvement

In large part, community involvement in instructional and support functions is the result of district and school leaders seeking to enrich the magnet school curricula. Generally, the same district staff, principals, or school staff providing implementation leadership also are seeking community participation and support.

A magnet school's curriculum is enriched by community involvement and strong leadership from district staff or principals. Those districts lacking energetic and resourceful leadership, at either the district or school levels, tend to have less active community involvement and less results in educational enrichment.

Sister City's magnets have developed through school principal and staff leadership: thus, community participation is a product of linkages to magnet schools. For example, the Granite High performing arts magnet actively involves community artists, musicians, dancers, and theater professionals. The performing artists teach classes, supervise apprentices and interns, and provide summer and full-time employment. In turn, they receive free student help with technical and support tasks.

In Sunshine City a high degree of involvement comes from local universities, businesses, and industry. Professional help is provided for science, engineering, and art courses; universities teach students on-campus and schedule field trips; and local businesses provide career internships in a variety of occupational areas. These community activities developed through the community advisory council, originally appointed by the district to assist in implementing the program, and through industry advisory councils developed for each theme magnet. Community advisors provided the next step of outreach to higher education and business resources to assist individual magnet schools. District strategy included broad community representation in planning and development. The plan for upgrading educational quality in the magnet schools called for involving the efforts of community professionals .

Valley City magnets benefit from active community involvement in enriching magnet curriculum. The effective magnet schools in the district have principals with strong leadership and entrepreneurial qualities, who developed their magnet programs by gaining the cooperation of community professionals and universities. The participation of public agencies is integral to the curriculum. Valley City's computer magnet benefits from a local university's computer staff who assist with program design, instruction, and employment opportunities.

ANALYSIS OF INITIATION AND IMPLEMENTATION FACTORS AND EDUCATION QUALITY

From our analysis of magnet program initiation and implementation, we would like to be able to answer several questions on the relation of these factors to education quality:

1. What conclusions can be drawn concerning a pattern of program development?
2. If there are patterns in program development, can inferences be drawn concerning the effects of a given pattern on magnet school education quality?
3. Are there certain district and community development conditions within which high quality magnet schools are more likely to thrive?

To analyze and answer these questions, district program development characteristics (from the 15 districts) are arrayed by district in Table VI.7. We have ranked the districts according to the educational quality ratings.

The array is not intended to show cause and effect relationships between district and community factors and school quality; it is to determine if inferences can be drawn concerning the pattern of district development factors and subsequent educational quality.

TABLE VI.7

CHARACTERISTICS OF DISTRICT MAGNET PROGRAM DEVELOPMENT AND EDUCATION QUALITY RATINGS

DISTRICT	District strategy	Leadership Policy consensus	Partici- pation in strategy	Imple- mentation leader	Staff involve- ment	District support	Community involve- ment	RATING OF EDUCATION QUALITY
Rivertown	Broad	High	Wide	Shared	Average	High	High	84
Sunshine City	Broad	High	Wide	District	High	High	High	82
Regional City	Limited	High	Wide	Shared	Average	High	High	78
Valley City	Broad	Low	Narrow	Principal	High	Mixed	High	76
Millville	Limited	High	Wide	District	Average	High	High	72
Midtown	Broad	Low/high	Wide	Principal	Average	High	High	72
Sister City	Limited	Low	Wide	Principal	High	Mixed	High	[illegible]
Clay City	Limited	Low	Narrow	Unclear	Low	Mixed	Average	70
Evergreen	Broad	High	Narrow	Principal	High	High	Average	68
Old Port	Limited	High	Wide	District	High	High	High	67
Foundry City	Broad	High	Wide	District	Average	High	High	61
Starville	Limited	Low	Narrow	District	Low	High	Low	61
Steeltown	Limited	Low	Narrow	District	Low	Mixed	Low	59
Centerville	Limited	Low	Narrow	Unclear	Average	Mixed	Low	56
Paradise	Limited	Low	Narrow	Unclear	Average	Low	Low	42

The review of development factors against the educational quality ratings led to the conclusion that district and community factors are important to magnet success. A comparison of the five districts with highest quality ratings to the five lowest shows a relationship pattern. The top five districts are characterized by:

- High district consensus on strategy
- Wide participation in strategy
- Strong leadership (district and/or principals)
- Average to high staff participation in implementation
- High consistency of district support
- High community involvement in the magnet schools.

The five high quality districts have either broad or limited program strategy, but have, as well, high consensus among decision-makers on the appropriateness of the strategy. The one exception, Valley City, developed several educationally effective magnets with low district consensus, narrow strategy participation, and mixed district support. Apparently, other factors (including school leadership and community involvement) helped produce a quality education program.

The five districts with the lowest educational quality ratings do not reveal a clear pattern. Four of the five had low district consensus, narrow participation in strategy, low or average staff involvement, and low community involvement. Two of the five had unclear implementation leadership and three have mixed or low district support. One of the districts (Foundry City) had positive district conditions but less than high quality ratings (although the highest of the five). These district and community factors establish the basic conditions for quality magnet school education, but there are many other intervening variables in the operation of the schools and curricula which contribute to educational quality.

District and community patterns of magnet program development are related to education quality. Particularly, district leadership, school leadership, and community involvement in the initiation and implementation phases all influence educational quality. The key factors that contribute to successful magnet school operations are consistent across the sample.

PHASE III: EFFECTS

The third stage of our magnet school development model concerns the effects of the magnet program upon public education. Because magnet schools are intended to assist in solving community and district education problems, continued interest and support from the community will depend upon the effects magnets have on the issues. Nationally and from an analytical perspective, magnet schools "leverage" on urban educational problems is of interest as it provides a measure of the power magnets exert, beyond the students being served.

Our analysis is designed to examine the leverage of magnet schools on those district problems and objectives that motivated program initiation.

Three elements of potential leverage are considered, as follows:

a) Programs that are maintained and expanded are likely to have had positive leverage on district problems

b) Magnet program effects in bringing forth new problems for resolution (e.g. determining how many and which students can be served by magnet schools)

c) Magnet schools effects, or leverage, on unanticipated problems or issues may bring benefits beyond the original objectives.

In Exhibit VI.3, we categorize four anticipated types of magnet effects by sample district and also list "other effects" that were not in anticipated categories.

1. Desegregation Leverage

District leaders often weigh magnet schools' value in terms of voluntary desegregation advances. Progress on desegregation objectives for these districts generally requires improving public attitudes about overall district desegregation and/or showing Federal courts or state monitors how voluntary methods improve racial balance.

The actual number of students and schools are sometimes not as important as the strategic role certain schools follow in desegregating voluntarily, through magnets, and the public's response to magnet vs. previous desegregation methods. Our desegregation analysis indicates magnet schools can and do have substantial effects in some districts.

Responses from sample districts' administrators, staff, parents, and community representatives, indicate at least 10 of the 15 districts realized improvement in achieving desegregation objectives with the magnet school program. Eight districts demonstrate a positive effect on reducing racial isolation in the district to their community and to federal court or state officials. The degrees to which the eight districts' (Millville, Steeltown, Foundry City, Midtown, Sister City, Sunshine City, Rivertown, and Regional City) magnet schools actually changed the racial balance of the district schools varies (this is shown in the chapter on analysis of desegregation and magnets). However, in each of the eight, magnets were a part of the district's school desegregation negotiations and presentations to courts, officials, and plaintiffs. Foundry City, Rivertown, and Sunshine City have utilized magnet school effects in voluntary desegregation as a major part of their total plan. Steeltown, Midtown, Millville, Sister City, and Regional City have used magnet programs, in a few schools, to illustrate progress in strategic areas or in schools that previously were defined as racially isolated or underenrolled.

Local respondents, from the ten districts with positive desegregation, report that magnet schools have improved public perceptions of desegregation. In Millville, Foundry City, Midtown, Sister City, and Evergreen districts, proposed or existing districtwide desegregation plans were less problematic and created less opposition through the use of magnet schools. In these districts, magnet schools were important in ameliorating community conflict concerning its schools. In these districts, magnet schools provided parents and students with a choice; this school choice partly relieved pressure and potential disagreements over districtwide desegregation.

The five districts not finding desegregation advantages through magnet schools either did not have a district desegregation objective for magnets (Old Port, Clay City, Paradise) or the magnet schools were not successful in improving desegregation (Centerville, Valley City).

2. Leverage on Quality of Education

All 15 districts in our survey defined one objective as improving the quality of education through magnet schools development. District leaders partly justified magnet program initiation on the basis that some quality improvement would result. But, only 10 of the 15 actually were able to use magnet school outcomes to show improved educational quality in the district.

Generally, the districts that leveraged magnets for educational quality improvements are the same districts that originally had the "academic quality" (vs. the "educational option") objective. Millville, Centerville, Starville, Midtown, Sunshine City, and Regional City had the major objective of improving academic quality in district education, and they portrayed magnet results as having that effect. Foundry City, Old Port, Evergreen, and Rivertown had educational option objectives for their magnet program; they also represented their magnet schools, to some extent, as improving educational quality in the districts.*

Why have the remaining five districts not leveraged magnet schools as improving educational quality?

- In Valley City, Clay City, and Paradise, the current school board, superintendent, and top administrators no longer consider magnet schools a high priority for their district.
- They do not devote time or attention to publicizing magnet schools, discussing program expansion, or making claims for change in the district as the result of the magnets.

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* Even though "educational options" served as the initial district program objective, Foundry City, Evergreen, and Rivertown, did develop some magnet schools based on an upgraded academic curricula.

- In Sister City, the district recognizes that magnet schools have been effective in meeting their objectives, but they do not want to draw additional attention to their success for fear of community demands for more magnet schools. They publicly claim that all schools provide equal educational quality.
- The Steeltown district leaders simply have not drawn broad community attention to magnet program initiation, implementation, or leverage of effects.

The degree of district effort in using the magnet school program to improve educational quality is not related to actual measured educational effectiveness. Our survey analysis revealed that Valley City and Sister City have several magnet schools that were among the more effective magnet schools in our study, but these districts do not publicize or seek to transfer their success.

3. Expansion of Magnet Programs

A third type of leverage is to expand successful magnet models to other schools, either as total-school or part-school magnets. It was hypothesized that districts would use magnet schools as expansion models, particularly in the districts that have operated magnet schools for several years with some degree of success.

The results do not show that program expansion always follows the operation of effective magnets. Several reasons contribute to the limited expansion among the 15 study districts. One is the amount of time programs have been in place. Millville, Centerville, Old Port, and Regional City programs are three years old or less. These districts may decide on expansion as they gain experience. Sunshine City is restricted to the number of current magnet schools by court order but they could expand the number of students participating. Five districts have not expanded magnet schools due to low or mixed leadership support. Conversely, among the three districts that significantly expanded their magnet programs (Midtown, Rivertown, and Evergreen), district leadership has been consistently high.

4. Support for District from City Leaders

A fourth possible type of leverage is increased support for the school district from city government, business, and other community leaders. The assumption is that most magnet schools attract a high degree of public attention and seek active parent and community involvement leading to expectations that the outcomes will be a method for the district to leverage greater city support for public education.

Our analysis revealed mixed success with this type of effect. Foundry City district leaders used the magnet schools to encourage City Council passage of a higher district budget.

They used evidence of improved educational quality, desegregation with minimal conflict, and more positive public attitudes as support for budget requests. In Midtown, the school district and city gained voter approval for a tax increase designated for the public schools. The school board, superintendent, and other leaders had worked hard to develop positive public relations for the district schools. They used the magnet school program to portray public school improvements.

Several districts, including Sunshine City and Evergreen, used the magnet school program to help maintain existing strong community support for the public schools. The magnets provided innovations and changes that offset potential loss of public support due to systemwide desegregation plans. They helped keep students in the district schools.

According to the responses and observations from our field study, 11 of the 15 districts have increased or maintained public support and confidence in district schools through the magnet program.

5. Other Effects Of Magnet Schools On An Urban District

The fifth area of effects is unanticipated benefits for the district and community, and new problems resulting from magnet schools. Because these are local latent effects of magnets identified from our in-depth case study methodology, they could not be directly measured from the outset. Often these positive and negative effects become major district issues. Some of these effects were frequently reported to the field staff, while others were noted only in passing, as part of our data collection on other program characteristics. However, a full analysis of magnet program effects requires consideration of these positive and negative, unplanned district-level effects.

Across the 15 sample districts, six predominant effects for the district as a whole emerges; we have termed four benefits and two new problems. They are discussed in the following pages. In the Guide to Magnet Development, approaches to resolving some of the problems that districts face with magnets are discussed.

a. Competition Among Schools and Raised Expectations

As magnet schools become well known through broad community exposure and district efforts to improve educational quality, competition is created between magnet and non-magnet schools.

This competition has several effects. One is pressure to improve educational quality in all schools, not just magnets. Some districts, in fact, anticipated this pressure and included it in the magnet school strategy in order to stimulate change with non-magnet schools. Districts can use public awareness of magnets to their advantage in instituting change in public schools.

A second effect of competition and raised expectations for education is parent and community demands for programs, similar to magnets, in their schools. Parents, students, and teachers in non-magnet schools often gain interest in improving the curriculum, resources, staff, and facilities. Districts are asked to deliver innovative programs for more schools, in more neighborhoods, particularly when the magnet program is viewed as the result of advocacy of a parent interest group. For example, Sunshine City's Asian and Hispanic communities now desire bilingual programs after observing magnet programs, based on other themes, in black neighborhoods schools. Several districts expanded magnet enrollment opportunities to all students in schools where part-school magnets are located.

A third effect of competition is improving the district's ability to compete with community private and parochial schools. Although this is not emphasized in program strategies, it is often a consideration. Several districts have stemmed the loss of students to private schools and drawn students back to the public system through magnet schools.

b. Maintaining Access to Magnet Schools

Magnet school program innovations typically gain rapid popularity within districts; however, often certain individual magnet schools are most popular. Some magnets may have long waiting lists because the theme or location is perceived as advantageous. The district is challenged to respond effectively to the high interest in the magnet program concept. But, additional magnets' location, reputation or resources may not be as advantageous. If the new schools do not offer the opportunities, existing magnet schools may tend to be more selective and may create resentment among parents and those students who cannot enroll. As interest in magnet schools grows, the district's strategy should encompass adding new magnets and ensuring perception of fair access to existing programs.

The location of magnet schools is a contributing factor. If access is limited for neighborhood residents, parents will resent neighborhood schools being turned into magnets, regardless of improvements. In particular, the addition of a part-school magnet, drawing numbers of students from across the city, is often viewed as hurting educational quality and access. Location can be a problem when either the best magnets or the majority of magnets are viewed as favoring access for the "haves" vs. the "have nots" (e.g., when magnets are predominantly located in white or middle class neighborhoods).

According to Sister City respondents, a positive location effect in that city has been that some residents moved into an inner-city area where magnet enrollment preference is given. Neighborhood students gain entry; students from elsewhere are on a waiting list. The magnet school aids the area's revitalization process.

c. Perception of "Skimming" Students and Staff

In seven of the 15 districts we visited, respondents had the view that magnets attract the best students and staff members from other district schools. Generally, the actual extent of skimming is minor: Some schools may lose only a few of the better students and teachers to magnets. The problem is perception, that is, some parents perceive that those who already are advantaged gain further advantage and those who are non-advantaged lose more ground. Contributing to this perception problem are district actions such as:

- Poor publicity concerning magnet school accessibility
- Inappropriate focus on recruitment of particular students or schools
- Irrelevant or unfair selection procedures.

Part-school magnets particularly are viewed as "skimming" if they isolate magnet from non-magnet students in the same building and use selective admission criteria that appear to favor certain groups (i.e., middle class or white students). The result can be that the magnet is viewed as yet another form of tracking, failing to fulfill the magnet definition of grouping students based on interest.

d. Improved Relations Between Public Schools and the Community

A majority of the districts in our survey received an unplanned benefit: improved relationships between the public schools and local business, government, higher educational institutions, and community organizations. The section on Community Involvement, above, explained this effect.

e. More Efficient Use of School Buildings

Magnet schools can sometimes increase efficient utilization of existing school buildings. Although new school buildings are the ideal, for most districts a goal is new uses for older buildings, particularly with declining or shifting enrollments. Many of the magnet schools in the survey gave districts the opportunity of attracting students to older remodeled buildings in what were often assumed to be less-attractive locations.

Several examples illustrate this point:

- Millville established three magnets in older, inner-city, underenrolled, and racially unbalanced schools. Two of the schools are now fully enrolled and are attractive magnet choices. The buildings are not ideal, one needs major rennovations, but magnet programs attract students and parents.

- Sister City joined two, old, underenrolled, elementary schools with a connecting building and created a large magnet elementary school that is successful. Its waiting list is 500.

- Evergreen's Madison High is an old building that had been underenrolled until several years ago when magnets were developed and several other high schools were closed. Part of the district plan was to develop magnet programs that would not require major building rennovations. The humanities and arts magnet programs helped the school build enrollment and improve its academic reputation.

f. Improved Staff Morale

A positive effect of magnet schools in some districts is improved teacher and principal morale. As the analysis of educational quality illustrated, staff commitment and involvement are important factors in educational effectiveness. Additionally, the magnet school affects staff. Most magnet schools primarily use existing district staff who volunteer and then find their interest and commitment to teaching renewed.

For the school district, the positive effects of magnet schools on teachers and principals are important for four reasons:

- Decreased probability of staff turnover
- Improved teaching performance from existing staff
- Enhanced utilization of staff skills and abilities, and expanded skills through the magnet theme
- Increased cooperative planning and teaching efforts among magnet staff.

This positive magnet effect on staff morale was found consistently in our site visits to the 15 districts, however, it was not emphasized as a magnet benefit by district administrators and school board members nor in previous studies. It should be strongly considered by districts that are operating or considering magnet schools.

SUMMARY OF MAGNETS' SCHOOLS ROLE IN URBAN EDUCATION

From our analysis of the district and community relationship to magnet schools, using the three phases of magnet program development: Initiation, Implementation and Effects, a mechanism has been provided to explain how magnet schools' effectiveness is closely linked to district and community factors.

Importantly, the magnet school is becoming a vital part of the strategy that many urban districts are developing to improve public education. Their decision to do so is backed in part by many of the findings described in the preceding paragraphs.

CHAPTER VII

9

STUDY CONCLUSIONS AND POLICY OPTIONS

The results from the Survey of Magnet Schools, our analyses, and our findings offer education policy-makers, administrators, researchers, teachers and parents a sound basis for making decisions concerning magnet schools. The study has expanded the knowledge of educational and desegregative effectiveness of magnet schools nationally. Our findings also clearly specify the conditions and factors associated with successful magnet schools and the cost-effectiveness of magnets in improving education.

The analysis of magnets' effects on education quality shows that a magnet program can assist with improving urban education and increasing education options and choice. Approximately one-third of the magnet schools and programs in the study demonstrate a high level of quality education. Virtually all of the other magnets offer important curriculum options and program diversity for students and parents in their district, while showing student outcomes and education quality closer to district averages. The high quality magnet programs found in urban communities that have given them sufficient commitment and support demonstrate that the magnet school should be considered strongly as a model for excellence in urban education.

Magnet programs have also shown positive effects on urban education by reducing community conflict over desegregation and voluntarily desegregating target schools. Districtwide desegregation has been significantly advanced through magnet schools in some districts where they are a part of a larger desegregation plan. Very importantly, our findings show that positive racial integration in magnet schools is strongly related to high quality of education.

The study results can have an instrumental role in magnet schools planning and development by specifying what conditions, decisions, and actions lead to successful magnet programs. As with most educational innovations that are broad programmatic concepts which are adapted by school districts to their own needs and realities, magnet schools have a widely varied degree of educational and desegregative effectiveness. In some school districts, magnet schools were initiated by the interests of a few educators and parents. These magnets typically do not become an integral part of the district's efforts to improve the quality of education, and they are often unique and effective for only a small select group of students or continue as special-theme programs in name only. In other districts, magnet schools have been adopted as a basic strategy for improving the quality of education and the district, schools and community have actively joined in extending access and opportunity to a broad spectrum of students.

We have learned that the degree of quality and impact of magnet schools are a direct reflection of the objectives, commitment, effort and resources a school district and community establish for the program. With the detailed understanding of how magnet schools operate within the context of different districts and communities made possible by our comparative case study methodology, we have determined the factors that make successful magnet schools and distinguish them from programs that become only temporary innovations.

Our research shows that quality magnet school programs can be produced by a combination of:

- Effective district leadership;
- District policy consensus on magnet schools;
- Commitment to implementation and support;
- Innovative principal leadership;
- Staff participation
- Special theme and consistency with curriculum, staff and instruction methods;
- Community involvement and support;
- Publicity and recruiting;
- Effective investment of funding and resources.

It has been possible to trace the factors that determine how and why magnet schools become effective in school districts, as well as show how magnet programs do not make significant advances in quality education and desegregation when the factors are absent or only partly implemented.

Our study also found that magnet schools can affect community perceptions of public education in urban districts and increase community involvement in the schools. Magnet programs can provide an urban district with positive publicity on quality education improvements. However, when programs are poorly planned and do not have strong policy commitment from district leadership, magnet schools can create controversies over questions such as who benefits, what schools get magnet programs and what extra costs are involved. In most districts, our study showed positive leverage, or benefits, of magnets in improving public confidence, offering choices in instructional approach and curriculum organization, and in demonstrating that the district is actively involved in education improvements.

Urban school districts benefit from magnet school programs by the partnerships and relationships established between magnet schools and the local private sector, higher education institutions, foundations, and non-profit organizations. The magnet school provides an attractive and effective means of drawing the community into the public schools, not just through parent meetings or extra-curricular activities, but through direct participation in designing, implementing, instructing and supporting magnet school programs. The special-theme basis of a magnet school is an effective method of incorporating the existing community resources and expertise into the educational process.

SUMMARY OF FINDINGS

The major findings of the study are outlined under the five main research issues that have focused our analysis:

- Improving quality of education
- Importance of district and school leadership
- Effects on desegregation
- Costs of magnet schools
- Community involvement and support

Improving Quality of Education:

1. Magnet schools can and do provide high quality education in urban school districts. One-third of the magnet schools in our study have high education quality as measured by ratings of instructional quality, curriculum, student-teacher interaction, student learning opportunities and use of resources.

   - High education quality in a magnet school is strongly related to three factors:

     1) an innovative, entreprenurial principal;

     2) a high degree of coherence of the theme, curriculum, teaching methods and staff to form a strong program identity; and

     3) special treatment by district administration with rules, conventions, and procedures.

     - Magnet school education quality is not related to its size, type of theme, or method of organization (total school vs. part-school program).

- Across the total sample of magnet schools and districts in our study, there was wide variation in education quality, which indicates differences in district objectives and commitment to magnet programs.
  - Most magnet schools do offer educational diversity and choice of type of education to students and parents in urban school districts

- The primary district-level factors in high education quality with magnets are policy commitment, a district program strategy and implementation plan that emphasizes improving education quality, and administrative flexibility with the schools.
  - Districts that have educationally effective magnets give their magnet schools flexibility and some special treatment in administrative procedures, staffing and use of resources.
  - In districts that take a low-priority approach to magnet schools, and view them mainly as a means of reallocation of students and/or giving new labels to old programs, there is little indication of quality improvements. Approximately 25 percent of districts take this low priority approach with little quality results.

- In magnet schools with high education quality, the principal, teachers and other staff are selected according to criteria that are consistent with the school theme and objectives.
  - Magnet school teachers in effective schools typically have high levels of commitment to the magnet concept and high interest in the theme-based instruction
  - Staff are selected through a process that departs to some degree from district standard procedures, e.g., specifying need for certain experience and training, commitment to the concept, capacity for

spending extra time and effort with students. Generally, the magnet principal has a greater role in selection than in other schools.

- Many of the educationally effective magnet schools make use of specialists from the community to provide unique assistance with instruction and resources for learning.

2. Quality education in magnet schools does not require highly selective methods of student admission.

- Magnet schools with high quality education serve average as well as high ability students.
  - The degree of selectivity in admitting students is not related to our ratings of the quality of education in instruction, curriculum, learning opportunities, etc.
  - Most magnet schools do not select only the brightest students. Of the 45 schools in the study sample, only 14 use achievement test scores, grade point averages or other highly selective methods of admitting students. The magnets that use highly selective admitting standards are generally in those districts where parents were supportive of this type of magnet.
  - Voluntary enrollment does improve the quality of education in magnet schools by self-selecting more motivated students. In most magnets, students with academic or behavioral problems are screened out.
- Eighty (80) percent of the 32 magnet schools in our study that reported achievement test scores have higher average scores than their district averages. Differences are partly due to methods of selecting students for magnet schools.
  - In over 40 percent of the schools, students' average reading and mathematics achievement scores were over ten points above district averages.

  - Twenty percent of the magnets had average student achievement scores over 30 points higher than district averages for the grade level.

  - The magnets with the highest achievement scores generally have used more selective methods of admitting students.

- Other student outcomes, measures, including average daily attendance and dropout, suspension and transfer rates, show that magnet schools have more positive outcomes than district averages, which is a function of voluntary enrollment and self-selection.

Importance of District and School Leadership:

3. Magnet schools will not succeed unless there is strong district leadership for a magnet schools policy and a plan for implementation as well as school leadership that is innovative and resourceful.

- The districts with the most effective magnet schools, in education and desegregation, have strong district-level leadership for the magnet program from the school board, superintendent and key district administrators.

  - School boards in these districts make a policy commitment to magnet schools, develop a consensus of support for the policy and establish a strategy for implementing the program.

  - The superintendent and top administrators play key roles in implementing the program strategy by establishing a process and system for selecting schools, developing magnet themes, gaining broad community participation, selecting principals and staff, and recruiting students.

  - The districts in our study that did not improve the quality of education with magnet schools were characterized by weak district leadership of the program, low policy commitment to magnet schools, and little planning and program development in the schools.

- Principals of effective magnet schools exhibit strong qualities of an educational "entrepreneur": a high degree of innovativeness in development of curriculum, resources and community involvement, as well as recruiting and motivating teachers and students who are committed to the magnet concept and theme.
  - One of two basic models of principal leadership were used in effective magnet schools: (a) a model in which district staff plan and design the program and principals lead in staffing, curriculum development and building the magnet reputation; or (b) a model where principals lead all major tasks from design and staffing to student recruitment and program implementation.
  - The principal is the key leader in developing the program design and resources into an operational reality that provides a unique and distinct combination of staff, curriculum and students.
  - Districts with effective magnet schools select principals and staff using special criteria for recruiting and evaluation of candidates that are appropriate to magnet schools
  - Effective principals involve teachers and staff in all aspects of the program, which increases their support and motivation.
- Educationally effective magnet schools have district leaders that continue strong support of the program after implementation.
  - Continuing leadership at the district and school levels important for maintaining the special rules, procedures and support that make magnet schools unique.
  - Leadership and support from the distirct level is strongly related to community involvement in magnet schools through assisting with instruction, recruiting and resource support.
  - Maintenance of leadership support gives the magnet schools program a more positive perception from parents and the community.

- Magnet schools can continue to be expended and considered as education models only if they are not viewed as a temporary or alternative program that can only affect a few students.

Effects on Desegregation:

4. Magnet schools have a significant positive impact on districtwide desegregation under certain district conditions, including strong policy commitment and effective implementation of a districtwide plan.

- Forty (40) percent of urban districts that develop magnet schools with the intent to affect districtwide desegregation do have positive results. Two-thirds of districts in our study had this objective for their magnet programs.

  - Complete desegregation is not generally accomplished in these districts, but successful use of magnets has decreased the percentage of students in racially isolated schools from an average of 60 percent to less than 30 percent.

- The districts showing the most progress in districtwide desegregation using magnets employ a variety of methods both voluntary and involuntary, as part of a total desegretion plan, including pairing, rezoning, two-way busing and mandatory assignment. Other factors related to districtwide desegregation with magnets are: strong leadership policy commitment to magnets and desegregation, more than one major ethnic or racial minority group, and larger district enrollment.

- In two-thirds of the magnet schools, there is full racial and ethnic desegregation.

  - Districts generally make strong efforts to desegregate their magnet schools and typically recruit and select students specifically for this purpose. The one-third of magnets that are not fully desegregated are in districts where the leadership did not make full desegregation a program objective.

  - A small minority of magnets (10-15%) operate to provide a haven for whites from busing, are underenrolled or help to forestall districtwide desegregation, but even these magnets have partial desegregation.

- Positive racial integration is advanced by magnet schools.
  - A racially integrated learning environment in magnet schools is related to the district achieving stable racial/ethnic balance and having a strong desegregation objective with magnets.
  - Racial integration within a magnet school is advanced in magnets with higher education quality. Magnet schools with a better learning environment also promote positive interracial interaction, learning and understanding.
  - The factors that help to produce positive racial integration are: principal leadership, some type of special treatment by the district, and consistency between the magnet theme and objectives and the program for delivering education.

- A favorable location and identity of a magnet school in a community help in meeting racial composition goals, but there are many examples of successfully desegregated magnet schools that are located in poor, predominantly minority neighborhoods.
  - Fully heterogeneous student composition is easier to accomplish when a magnet is located in a racially mixed, neutral or middle class neighborhood.
  - The major factors leading to desegregation of a magnet school in a less desirable location are: a) the degree of effort during program planning and development to improve the school identity, and b) the strategy for gaining support for the school and for student recruiting to the theme.

- Magnet schools help reduce real and potential community conflict concerning desegregation.
  - Over 50 percent of the districts in our study had experienced conflict over desegregation and developed magnets to resolve some of the antagonisms and opposition.

In other districts, magnets helped to anticipate and prevent potential conflict.

  - The magnet school concept works to bridge the gap between a desegregation policy and citizen fears. Magnet schools serve to indicate the district's efforts toward a remedy and they give parents and students choice and a greater sense of control.
  - But, if magnet schools are implemented without delivering on their promises, new tensions and resentments can easily be created within the community.

- Magnet schools have a positive effect on holding students in public schools and reducing "white flight."
  - Many magnet school programs are developed with the intention of reducing enrollment decline, and particularly white, middle class students. Several districts in our study have effectively used magnets to compete with suburban and nonpublic schools, and hold down movement of students out of the district.
  - Magnets are generally desegregated more easily where there is population growth and multiple minority communities. But, when these conditions are absent, magnets can still help reduce white flight.

Costs of Magnet Schools:

5. The total cost per student in magnet schools is slightly higher than for nonmagnet schools, but the quality of education and racial integration in magnet schools are increased by the extra spending.

- The average total cost per student for magnet school was approximately $200 more than nonmagnets in 1980-81, and the cost declined to only $59 more in 1981-82.
- The average total cost per student in secondary school magnets was approximately $200 more per year in 1981-82 than the average cost in nonmagnet secondary schools. Elementary and intermediate level magnet schools tend to cost slightly less than nonmagnets.

  - Part of the extra costs for magnet schools is due to start-up costs which decline over the operational years. The data from our study show that the $200 per student average cost for secondary magnets had declined from $850 for 1980-81, due to fewer new magnet schools being created.

- The cost items accounting for higher magnet costs are average salary per classroom teacher for secondary magnets and pupil transportation.

  - Nonpersonnel costs for magnet schools tend to be higher during startup of the program due to items such as construction, equipment and supplies.

  - The main nonpersonnel cost difference for magnet schools is transportation, accounting for a $100 higher average per student cost.

- The costs of magnet schools across districts and schools are positively correlated with education quality (r = .38) and racial integration (r = .34).

  - Magnet costs are not much higher than the costs for other schools, but the extra spending pays off in better education.

  - Districts that do not make a small investment in magnets do not realize quality improvements.

- The total cost per student for magnet schools varies by theme with specific, single-theme magnets having lower costs than combination themes.

  - The average per student cost for a combination theme magnet (two or more themes in the same school, e.g. academics and arts) was $3,358 in 1981-82.

  - The average per student cost (1981-82) for a science/math theme magnet was $2,214; arts: $2,686; general academic: $2,408; and social studies: $1,899.

  - It had been expected that science and arts themes would have higher costs due to the special equipment and teachers that are typically necessary, but these themes had lower costs than magnets that offer a broad range of special subject areas under the magnet concept.

- Federal ESAA funds for magnet schools played an important role in helping districts plan and implement programs and bear necessary start-up and early operational costs.
  - Districts that were not in the ESAA program typically sought start-up assistance from private sources, state funds, or other special funding but it generally did not match the level of federal support for magnet programs.
  - Only a few magnet schools have completely disappeared due to the loss of ESAA support (indicating districts' commitment), but many have reduced program services and most of these districts have not consider further expansion of magnets.
  - ESAA funds typically allowed magnet schools a greater deal of flexibility in programming that helped make the schools unique, e.g. part-time professionals, equipment, special activities, curriculum development.

Community Involvement and Support:

6. Effective magnet schools benefit from active community involvement in program planning, design, instruction and support.

- The districts with the highest quality of education in magnet schools had high levels of community involvement from parents, businesses, universities, or community organizations due to the attraction of magnet themes and district and school efforts to build unique, quality programs.
  - Community involvement in magnet schools takes on forms normally not found in public schools, such as planning program designs, helping write curriculum, providing part-time teachers, and arranging for special equipment or facilities.
  - All magnet schools gain higher parent satisfaction than other schools due to the voluntary enrollment, but what differentiates educationally and desegregatively effective magnets are new and unique forms of parent involvement and the involvement of community organizations.

- Community participation in the initial planning and strategy for the magnet program tends to decrease opposition and lead to high involvement in implementation.
  - Leaders of effective magnet programs generally had wide participation in program planning decisions, such as magnet locations and themes, student recruiting, and student selection procedures. Of the six districts with the highest quality education in magnets, five had wide participation and input from the community in planning.

- Effective magnet schools can help increase community confidence in public education.
  - In districts that have delivered a magnet program according to what was planned and expected, and gained good publicity, magnet schools have helped increase public support for the district.
  - Magnet schools that gain the reputation of being unique in name only, or favoring certain groups of students for admission, can create additional problems in community confidence and support for public education regardless of the quality of the magnets.

Based upon the study findings and conclusions, we have outlined a series of policy options for consideration by federal, state and local officials in planning future steps with regard to magnet school programs.

POLICY OPTIONS WITH MAGNET SCHOOLS

The findings from the national study of magnet schools provide a solid base of evidence and analysis for considering several options for the future of magnet school programs. The study results were derived from analysis of magnet schools in a representative sample of the nation's districts currently operating magnet school programs. These results thus offer a unique opportunity to consider several options for education policy that could assist the development and improvement of magnet school programs.

The following list of policy options, divided into federal or state options and local district options, should not be considered recommendations of the study contractor for policy change, but rather suggested options based on our findings and analyses:

Federal or State Options

1. A program of grants to urban school districts that encourages establishing, developing and maintaining magnet schools as models of educational excellence and integration.

Pros:

A federal or state funding program to offer "seed money grants" for local magnet schools could have two important benefits:

- First, the funds would allow districts to overcome the main initial barrier to quality magnet schools of staff time for careful planning, strategy development, marketing, community relations and recruitment.

- Second, the grants would bridge the small differential in per student costs of secondary school magnets, as compared to nonmagnets. A district can be encouraged to initiate or expand magnet programs if per student costs are not excessive.

- Initial funding could be a combination of federal funds and local support with the federal role declining as the program becomes operational, but continuing to support the small extra costs that produce highly effective programs.

Cons:

- A federal magnet school program would require support for greater assistance to urban school districts either by direct grants or through states. The program would also need to be coordinated with the existing block grants to states since a specific program is targeted, rather than being an option for states to choose.

Discussion:

Federal funds spent on magnet and other ESAA programs dropped from a high of $398.5 million in 1979 to $25.2 million on comparable activities in fiscal 1982 with the Chapter 2 Block Grants. At the same time, urban school districts experienced a decline in Title IV funds under the Civil Rights Act from about $46 million to $24 million.

- Our survey has shown that this drop in federal aid has shivered the timbers of many magnet schools and programs but has not resulted in their destruction, even though Chapter 2 funds go overwhelmingly to meet other local needs. For the present, magnets have outlived the capping-off of more than $100 million a year in states where state aid has, since 1979, gone into equivalent magnitudes of reduction.

- Few new magnets are being created, meanwhile, and some districts have been debating the issue of terminating their magnets for the last two years. It is too early to assess how changes in federal and state aid will affect the future scope and viability of magnets, simply because localities and states alike are currently reformulating educational priorities and magnets will take their place in the course of this policy dialogue.

Costs:

If a federal policy aim was to develop magnet schools that are well designed, located, and managed to provide high quality integrated education, what would the funding come to? If we posit 300 districts as being realistically willing and able to employ magnets, with an average total enrollment of 35,000, and with an average of 15 percent of students enrolled in magnets, we are dealing with 1.6 million public school students a year.* If we use our finding of $200 per pupil cost differential for magnets, especially in their startup years, then the minimum aid required is $320,000,000, setting aside costs of administration of the aid.

Our cost analysis shows that the average per pupil difference declined over one year from $200 to $59. This decline was consistent for districts that had been ESAA funded as well as those that were not. There is reason to believe then that the $200 differential comprises early startup outlays, regular operational costs, and the use of ESAA funds as a special opportunity for equipment and supplies purchases. Thus, the external aid might reasonably be computed on a $100 rather than $200 difference, yielding a $160 million annual investment in a total of 300 urban school districts.

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*We say 300 because this consists of the 240 districts with 20,000 or more students and another 60 smaller districts from the 5,000 to 20,000 range.

Alternatively -- recognizing "overtime" reductions in magnet costs are realistic -- the aid might be set at $200 per pupil in Year 1 and go to $50 by Year 5. This would put the total aid package nationally at $320 million in Year 1, with decrements thereafter until it stabilized at $80 million to $100 million. None of these figures include inflation.

2. To provide local flexibility in design of programs and use of funds, a federal or state magnet program would not be restrictive with unnecessary regulations.

Pros:

With flexibility for local conditions and systems, magnet schools can more easily become a part of the regular administrative structure rather than being viewed as a special, temporary or demonstration program. School districts should be encouraged to use magnet schools as models for excellence and part of a curriculum reform strategy.

- Educational quality concerns have taken on a new primacy. Magnet development has shifted from an emphasis on elementary to an emphasis on high schools. Desegregation planning has become more supple, with new approaches being taken toward inter-district and increasingly voluntary features. These trends may change in unexpected ways in the years ahead.

- At the same time, many state boards have become increasingly regulatory, introducing new, often legislated, testing programs and curriculum requirements.

- Local systems need aid, accountability requirements, and technical assistance with planning, implementation and evaluation, but their magnet development efforts do not need heightened regulation. Magnets require permission to be different. They must have freedom to perform well.

- Regulations that lead toward isolation or separation of magnet schools from the district curriculum or other schools run the risk of magnets being labeled as alternative schools, special experimental programs, or schools only for students with special abilities or needs.

Cons:

- Federal aid for magnets, if renewed and expanded, might entail a proliferation of proposals and monitoring management expenses. Proposal development is costly for localities and obligates costly review by the Department of Education. This approach, moreover, tends to set magnets apart from regular operations in undesirable ways, both locally and federally. It certainly breeds uncertanties at the local level which diminish program definiteness and stability -- contributions to quality.

- Federal aid should not be ringed about with regulations once eligibility has been established. Regulations lead to local restrictions and buildup of federal or state bureauracy.

Discussion:

Our study does not illuminate the issue of how aid might best be shared between the three layers of government, or what should be the allocative mechanisms and terms. We are convinced that very few state education agencies have accumulated expertise at all adequate for providing technical assistance, let alone legislated appropriations for magnets. Exceptions include Washington, California, Florida, New York, Connecticut, and Massachusetts, among others; but there are probably between 30 and 40 state agencies that are quite inexperienced with magnet development. And, among the 300 districts most desirous of creating or maintaining magnets, we estimate that 225 are currently encountering severe revenue crises.

Magnets are in their infancy but they have been around long enough so that features do not have to be reinvented constantly in order to become eligible for aid. The aid source could instead devise a simple checklist with legal "boilerplate" which together would constitute an application. The checklist would concern verification of magnet aid eligibility, not the basis for grant competition. We also suggest that aid run for five years, with option to be renewed for one five-year period thereafter if independent evaluation indicates success of the magnet.

3. To effectively contribute to urban education, federal or state support for magnet schools should be linked to district efforts to desegregate their schools.

Pros:

- Eligibility for magnet aid should consist of evidence that a school board seeks to create or to maintain racial/ethnic equity in its district and to operate magnets that display high quality education and high racial integration as defined in this study report.
- Magnet schools have proved to be a useful tool for racially mixed school settings and in improving racial/ethnic integration and advancing multicultural education with schools.
- The advantage of the magnet school concept for within-school integration is that the curriculum and school organization often encourage multi-cultural learning and sensitivity, as opposed to a special program model consisting of seminars, lectures or special events.
- Magnet schools' role in district desegregation can be aided by emphasizing support for districts that are in the process of desegregating or districts that have already implemented a desegregation plan and stabilized school racial/ethnic composition but would now like to augment their plan with magnets.

Cons:

- Desegregation goals will require some federal or state monitoring of district plans for magnet schools in comparison to overall district desegregation efforts.
- If magnet schools do not have a role in district desegregation through the method of voluntary enrollment of a heterogeneous student racial/ethnic composition, the magnet school concept will lose its unique and valuable role in urban education.
- Magnet schools can effectively combine curriculum innovation and voluntary desegregation, but if the magnet design is used for only one of these objectives, the concept loses its capacity as an innovative approach for school organization.

4. Information dissemination and assistance with magnet design and implementation would be an appropriate method of federal or state support for magnet schools and could be effective in assisting urban districts to develop high quality magnet education. Assistance would be particularly valuable for magnet schools at the secondary level.

Pros:

Technical assistance with program design and development is highly desired and proactively sought by school systems interested in magnet schools. For instance, all of our sampled districts reached out to other districts that had magnets for information and advice. Administrators, policy-makers and magnet planners typically made trips to see operating magnets, often spending several days in the host district, visiting several magnets and collecting as much written material as possible.

We suggest that assistance might be enhanced and sharpened through utilization of dissemination capabilities already in place (such as the National Diffusion Network and NIE's Research and Development Exchange). For every little additional cost, these organizations could assist with magnet development by conducting regional/state workshops and conferences, developing materials to aid magnet planning, and performing linking activities to place districts interested in magnets in touch with those that already have them.

Districts considering magnets commonly seek information and advice on several topics:

- Identifying and selecting magnet themes: In the earliest planning stages, local planners tend to seek information about "themes that work." A major need is to fit themes to the local setting and to gain recognition of the flexibility and possibilities for magnet themes. Information is necessary to identify and select themes that will work in a specific district and community. Potential approaches from our sample districts include:

  a) mail and phone surveys of the community,

  b) extensive meetings with community leaders, parents, teachers, and principals,

  c) surveys of offerings in competitor private schools,

  d) using the experience and judgment of longtime district administrators and policymakers.

- Magnet staff selection: Assistance and advice can be useful in planning staff needs, or as one of our survey respondents put it, "to see what kind of people it takes to run one of these things." Magnet planners often seek information on strategies for resolving special magnet staffing needs with union contract requirements or longstanding district policies and customs of transfer and seniority. Districts that are faced with large teacher surpluses face special problems in this regard.

- Identification and use of part-time staff and outside specialists (e.g., artists, scientists) from the community: Magnets provide an excellent opportunity to reach out and make creative use of rich personnel resources in the larger community. However, school districts are not accustomed to doing this. Mechanisms for identifying appropriate outsiders are not in place, and standard personnel policies mitigate against the flexibility required to use part-time and noncertified staff. However, the outstanding examples from our study show it can be done successfully.

- Student selectivity issue: The local policy debate could be clarified by knowledge about other specific selection mechanisms (e.g., interview protocols, behavioral standards) that have been tested in practice and could be helpful.

- Marketing magnets and recruiting students: Public school districts are not accustomed to these activities, for they are not generally a part of public education. However, in the case of magnets, marketing and student recruitment are essential activities, for magnets are voluntary. This issue encompasses questions as broad as designing an effective media campaign or as narrow as how to recruit particular groups of students that are difficult to reach.

- Increasing magnet accountability: Magnets are visibly different: they stand out as special, and they can consume extra district resources (whether financial or political). Magnet financial accountability could be increased through use of program budgets, indirect cost accounting, and multi-year planning. Coupling program evaluation assistance with financial accountability would aid district decision-makers in developing magnet educational quality.

Cons:

- Technical assistance is not effective when it is offered by the same agency that is regulating a program or monitoring the use of funds. The problem is not in the intent or qualifications of staff but in the perception of the function of funding agencies by school districts and the difficulty of effectively combining monitoring and assistance roles.

Discussion:

Technical assistance and information can be very helpful to districts if provided in a manner that is separate from regulation. For example, we suggest above that assistance can be useful to urban districts in the sometimes sensitive area of magnet student selectivity. But, we do not believe that student selectivity is an appropriate area for federal or state regulatory control. Rather the policy choice of whether, or to what degree, magnets selectively admit students should be left to local districts, within constitutional limits pertinent to equal treatment. Assistance should be provided upon district request.

Local District Options

1. Magnet schools that produce high quality education will involve extra costs for startup and small extra per pupil costs for operation.

   Some districts have been so effective in allocating funds to magnets that they show virtually equal costs to non-magnets, and the publication of this fact is to their advantage in gaining public support. Extra costs for magnet schools should be supported by non-district tax revenues, either state or federal funds, private or foundation support, or funding-raiding.

2. Positive public relations for a district can be advanced with magnet schools and strong linkages with community businesses, institutions and organizations can be developed through magnet schools.

   A major advantage of magnet themes with a specific area or career focus, e.g. science, health, business, computers, arts, etc., is that these themes are naturally attractive to interested organizations and professionals in the community. We also found that these types of magnet schools are more cost effective than broader theme magnets.

3. As a voluntary tool in desegregation, magnet schools can help a district increase districtwide school racial/ethnic composition or aid in desegregating specific areas or schools.

Magnets are also effective in reducing community conflict, or potential conflict, over desegregation and in holding students in a city's public schools. However, to have these positive effects, district leadership must be highly supportive and present an effective and vigorous method of implementation of desegregation.

4. In planning a magnet program or new magnet school, a survey of parent and community interests and broad participation in decision-making will reduce conflict over magnet plans and serve as an effective means of program publicity.

The planning process for the district magnet program can be used by central administrators and principals as a method of assessing the level of interest in magnets across neighborhoods, racial and ethnic communities, and parents socio-economic level. By opening the process to direct community input, program planners can identify theme interests and sources of community support and involvement. Many of the issues concerning program purpose, procedures and intended effects can be publicly debated prior to startup, which will anticipate some of the questions that are likely to be raised after the program is operating.

5. Magnet school themes may be effectively built on existing school, staff or community strengths. But magnets do not offer unique quality education when they are only an existing program or curriculum with a new name.

A concerted, coordinated planning and design effort involving district staff, principal, teachers, and community is generally required to develop a special and unique magnet theme and program design. Theme selection should consider strongly local factors of student interest, connections to community, staff specialties, and available leadership as well as the experience of other districts with various themes.

6. To be effective in offering quality education, magnet schools do not need to use highly selective methods of admitting students, such as previous school performance or achievement test scores. In fact, public support for magnet programs is more positive when application is mainly by interest and selection by lottery.

Voluntary enrollment by interest tends to self-select those students that are likely to do well in a magnet program with a special theme. If some entrance requirements are needed, they should be the minimum necessary to ensure that a student is interested in the theme and should not be used only as a means of excluding students.

Local planners should be aware, however, that student selectivity is a policy choice. It should be faced openly and publicly in the earliest planning stages, and the policy debate should be inclusive of all groups. The district that fails to do this may subsequently discover that its magnets are perceived by many sectors of the community as elitist and inequitable, even when they are non-selective and widely inclusive, for many parents and educators alike regard magnets as characteristically more selective and exclusionary than our survey found them to be.

Misperceptions arising out of insufficiently realized or subrosa policy debates on the issue tend to induce resentment and conflict from community groups who feel shut out and regular school personnel who feel pushed aside and unjustly compared to what they perceive as exclusive and favored magnets. Over time, this can undermine the support accorded magnets, and undercut their identity and definiteness, which are associated with educational quality.

7. A large magnet program in a school district generally needs a central director or coordinator.

He/she can serve as a program advocate within the district administration to plan and manage new magnets, work with school principals and staff, and coordinate magnet marketing, publicity and recruiting. Often these responsibilities can be performed by a line administrator and this arrangement has the advantage of not removing magnets from the normal chain of command and decision-making.

8. The magnet school can be used as a means of stimulating educational diversity and increasing opportunities for parent and student choice of type of education.

Magnets should not be advertised or perceived as "alternative" schools, but rather as a means of selecting a type of education within the regular system. Elementary and secondary schools should be given the opportunity to develop a magnet school or program if they find advantages in this educational model.

This national study of magnet schools has produced the first set of research findings on the educational and desegregative effects of magnet schools based on data from a representative sample of the public school districts operating magnet programs. The study findings and conclusions have been used to outline several policy options for future development and improvement of magnet schools programs. We hope that the results of the study will be useful to decision-makers, educators and parents across the country as they plan and consider ways to improve the quality of education in the nation's public schools.

APPENDIX I

SUMMARY OF SURVEY OF MAGNET SCHOOLS METHODOLOGY AND SAMPLING PROCEDURES

COMPARATIVE CASE STUDY METHODOLOGY

Design and Pilot Testing

The research questions examined in the pilot study were based on the four study objectives and the issues raised through the literature search. The draft field guide was based on the research questions and issues expressed in a set of variables, interview questions, and data items for collection from pilot sites. Following the pilot study and the completion of the Interim Report, the methodology and field guide for the survey were revised and refined to provide data for testing specific research hypotheses.

The preliminary pilot study findings enabled assessment of the data available to answer research questions and determination concerning whether our methodology examined the factors necessary for measuring the effectiveness of magnet schools. For example, after the pilot study it became apparent that school districts apply a variety of methods in recruiting and selecting students into magnet schools. The methods employed effect student outcomes. As a result, we developed six specific hypotheses to test the relationship of student recruitment and selection to magnet school educational outcomes. The research design process culminated with a set of hypotheses, capable of being tested, based on the design phase.

Field Guide and Data Collection

The core of the comparative case methodology is the study field guide. It serves as the basic data collection instrument for the survey and both standardizes the on-site interviewing and data collection activities of each field team and categorizes the data recording and reporting from each district and magnet school.

Using the field guide questions as the basis for questioning the site field teams, comprised of three professionals trained in the case study methodology, interviewed school district administrators, board members, magnet school principals and teachers, community representatives, parents, and students. The interviews used an open-ended question approach, and had as their basic goal to understand the development, implementation, operation, problems, and effects of magnet schools in each district. Using the field guide as a basis for reporting, the researchers also visited three magnet schools in the district and reported on the educational processes and indications of quality

Using the field guide, quantitative data were gathered, on-site, for a pre-determined set of items (i.e. school enrollment, achievement test scores, attendance, curriculum, racial/ethnic composition). To reduce the school district's data burden, quantitative data collection utilized information normally collected in the course of reporting and monitoring activities. Thus, the field guide, used by each field team at site visits, included questions and forms which allowed for standardization of data presentation and categorization across the 15 sample districts.

A set of indicators was developed to access quality of instruction, the educational environment, and the magnet school's effectiveness in creating a racially-integrated environment. These indicators were used to rate magnet schools' educational and integration quality and to rate comparisons among and within districts. The quality education measures are analyzed for their relationship to district, school, and community factors. Final report findings include a presentation of these factors present in the districts and magnet schools that demonstrate quality education.

The Department specified that the study not compare magnet and non-magnet schools. We did not visit or collect data on specific non-magnet schools.

Each case study report, completed by the field team after a site visit, was structured by the organization and questions contained in the field guide. Thus, the case reports contain both quantitative and qualitative information that corresponds to the variables, research questions, and hypotheses being tested. Analyses of the questions and hypotheses across the study sample sites were conducted with the case study reports as the data base.

Sample Selection

The sampling plan for the Survey of Magnet Schools was designed so the 15 districts selected for the study represented of total population of U.S. school districts operating magnet schools. The two basic steps in the sampling process were to identify the districts' population with magnet schools and to array the population across key stratifying variables to enable national representation.

In accordance with the Department's interest that the study magnet schools focus on their roles and effectiveness in urban school districts, identification was mostly confined to districts with an enrollment of 20,000 or more students. The research staff contacted the 275 districts in this group and to determine if they operated magnet schools in accordance with our study definition (See Preface). Additionally, staff contacted 75 urban, districts with less than 20,000 students, that had applied for federal magnet school funding support. The assumption was that these smaller urban districts, would most likely have some type of magnet school program. District contacts were asked to provide basic district and magnet schools data. (Appendix II summarizes the data on the population of magnet schools collected through this process.)

Through contact with urban districts 138 school districts operating magnet schools were identified and grouped into cells according to the stratifying variables: region, district size, number of magnet schools, and racial composition. The sample of 15 districts was then randomly selected by cells, which produced a representative sample of the population of districts operating magnet schools across the key district characteristics. District selection was not influenced by the type of magnet schools, themes, school size, or quality of education in order that these magnet schools characteristics vary and, thus, be treated as "dependent variables" in the study.

Table II.1 displays the sample of selected districts and their characteristics. Pseudonyms were assigned to protect confidentiality, and to ensure that the findings, from these districts, be treated as a representation of the total population.

All of the selected districts have a minimum of three magnet schools and one secondary magnet school. Districts with fewer magnets were not selected for the study. This decision was based on the estimate that three magnet schools could be studied per district, during a one-week site visit.

In the planning stage of each sample school district site visit, the field team leader selected three magnet schools to be included in the study. The three magnet schools were selected with the assistance of the district contact person (usually the magnet program director or a district administrator), who provided information on the types of magnets, grade levels, and location. We selected secondary magnet schools (if possible), and magnets with different themes. Typically, the schools were in different areas of the city.

The number of sample districts, in each of the five regions, was based on the average percentage of magnets in each region and the proportion of districts in the region with magnet schools relative to the total number of districts. For example, the Southeast has fewer total school districts than the Northeast, but more magnet school districts thus, four sites were selected in the Southeast vs. three in the Northeast. (Appendix II illustrates the number of magnet school districts by region). Districts with a of minority students population less than 20 percent or greater than 80 percent were not included in the sample because magnet schools, in these districts, would minimally effect desegregation. We also sampled to obtain a distribution of districts according to total enrollment.

In the planning stage of each site visit to a sample school district, the field team leader selected three magnet schools to be included in the study. The selection of the sample schools was conducted with the assistance of the district contact person (usually the magnet program director or a district administrator), who provided information on the range of types of magnets, grade levels, and location. In each district we asked to visit three secondary schools (if possible, or a combination of two secondary organizations and one elementary magnet), three schools with different magnet themes, and schools in different areas of the city. The pilot study findings indicated that selecting three schools for the case study based on these criteria would provide valid representation across the district's magnet secondary schools.

Description of the Study Sample

The data in Table II.2 summarizes magnet schools characteristics, included in the study. Included is the theme enrollment, school type, and grade level for each magnet program. The 45 magnet schools and programs form the sample for the school- level analyses of educational quality and school desegregation effects. The magnet schools themes, in the sample, exhibit variety and indicate local district initiative in meeting particular needs and interests.

The 45 sample schools include 24 total magnet schools (53 percent) and 21 part-time programs or magnet centers (a part-day program for students from several schools). This ratio is representative of the population survey data where 61 percent of the magnets were total-schools. By focusing as well on secondary magnet schools more part-school programs were selected due to increased secondary level usage. Thirty-three of the schools in the sample are either senior junior/senior high schools; six are middle schools or junior high schools; four are elementary schools; two are K-12 alternative schools.

APPENDIX I

EXHIBIT I.1

SAMPLE DISTRICTS' COMMUNITY SETTINGS

To ensure our pledged confidentiality, sampled public school systems, magnet schools, and programs have been given pseudonyms. System settings follow:

- Steeltown hosts a truly urban school system. As a southern industrial and commerical complex with a metro area population of more than 800,000, it is also biracial rather than multiethnic; it hosts more than 300,000 households, about 30 percent of them black. The central city has shrunk, since 1950, to less than 300,000, and is 56 percent black. Steeltown has maintained a steady but low level population growth from 1940 to 1983. As its heavy manufacturing base has eroded, Steeltown has not kept up with the competitive pace set by other Sunbelt cities. Although school desegregation began under court order more than 20 years ago, suburbanization and nonpublic "academies" did face a student drain until the early 1970s. Today, Steeltown's public school enrollments are 78 percent black, contrasted with 47 percent in 1960.

- Foundry City is a large metropolis located in the Northeast. Its population of more than 350,000 has been declining gradually since 1950 as the heavy industries basic to the economy began to erode in the Great Depression and relocated after World War II. Foundry City is multiethnic: A black residential population of 27 percent in the central city is complemented by Hispanic and Asian-American settlements that continue to expand, and the proportion of first and second generation immigrants from several European countries is high. Foundry City's public schools enroll nearly 25,000 students, roughly 46 percent of them white. While black and white enrollments have shrunk since 1973 as a result of reduced annual births and rising regional out-migration, racial/ethnic compostion has remained relatively constant. Foundry City's major educational challenge is a public revenues shortfall.

EXHIBIT I.1
(2)

- Clay City comprises the urban core of a metropolitan area in a Border State. The metro area's population has grown modestly over many decades and will probably reach one million by the year 2000, Clay City itself has shrunk below 300,000. Clay City exerts economic dominance over a large region that produces coal and other mineral ores and a wide variety of agricultural crops. Its public schools are organized on a countywide basis that includes inner city, bedroom suburban, exurban, and rural farm subpopulations. Since the system was unified racially by court order in the mid-1970s, its biracial enrollments have changed from 25 percent to 29 percent black, but enrollments have remained constant in size, averaging about 95,000 students.

- Starville is located in a major metropolitan area of the Southwest--an area that shows high growth in the last twenty years. The City of Starville hosts less than 175,000 of the 212,000 residents of the area and its growth has been slight. The metro area, most of which is encompassed by the public school system, is 16 percent black and 12 percent Hispanic, while the public school enrollments--shrinking a bit from falling birth rates--are 55 percent white, 13 percent black, and 31 percent Hispanic. Starville's economy is flourishing and the public schools host more than 90 percent of the area's children.

- Old Port is a seaport city of about 125,000 which has been a part of the coastal Northeast for three centuries. The City's population has experienced small yet annual declines in size since World War II. About a third of Old Port's residents are black. The general population is ageing beyond child-rearing years. The public schools have suffered both enrollment declines and stiff competition from nonpublic schools. Old Port's public school enrollment of 17,000 is 79 percent black and other minority students.

- Paradise is a satellite city of more than 110,000 located within a large urban region of the Far West. It changed from an affluent semi-suburban community to a full-fledged commercial and industrial complex during the 1970's, when the population also changed from 65 percent white (1970) to about 58 percent white (1980). Paradise public schools have always faced stiff competition from dozens of nonpublic schools in its vicinity. Faced with that competition, out-movement of white households and in-movement of black, Hispanic, and Asian-Americans, declining births, and fierce white reactions to court-ordered desegregation a decade ago, the Paradise schools have declined in enrollments and changed in ethnic composition from 56 percent to 26 percent white over a period of thirteen years.

- Sunshine City is an urban port of more than 875,000 residents in the Far West. It has experienced great growth since 1960 and enjoys a booming economy. Sunshine City is approximately 80 percent white, while its public schools are about 50 percent white. The difference is due to a sharp drop in annual white births, an aging white population, and the in-movement of substantial numbers of young Hispanic and Asian-American families since 1975. Sunshine City's public schools were desegregated by court order six years ago.

- Regional City in the Deep South is the trade nexus for a multi-state region. Its metro area of more than 375,000 has grown substantially since 1960, as has the City itself, which houses more than 200,000 of those citizens. In addition to older parochial schools, Regional City whites reacted very negatively to court desegregation orders (1969-1973) and thousands of children were placed in those parochial schools as well as in newly formed "academies." Public enrollments dropped from about 54,000 to 45,000 during the 1970s, and have not grown. Student composition shifted from 60 percent white in 1968 to 44 percent white in 1978; the City's composition changed from 66 percent white to 59 percent white over the same period.

- Centerville is a small industrial city of 30,000 on the outer fringe of a major urban center in the Midwest. Since 1970, 20 percent of the white families have left the City, mainly moving to a newer, neighboring community, and being replaced by blacks attracted from the urban center by job opportunities. Currently, 70 percent of the City residents are white. The composition of the 6,000 student school district mirrors the change in the City's ethnic composition. The district enrollment 10 years ago was 59 percent white, and is now 49 percent black, 48 percent white and 3 percent Hispanic. The population changes in this more traditional community together with violence associated with the initial voluntary desegregation in 1968-69, accelerated the perception of decline of education quality, and presented the district school board and administration with a public highly skeptical of the education system.

- Evergreen is a major urban commercial center and port city on the Northwest coast which grew rapidly after World War II, stimulated by new manufacturing firms, the development of foreign trade, and the adjacent forest products industry. In the mid-1960's population growth shifted to the surrounding metropolitan area (of 1.6 million), and the City's size declined slightly to 494,000. Two characteristics of the City strongly affect the public school system: its long narrow shape which hinders public transportation, and a recent rapid increase in the proportion of minority youth in this historically multi-ethnic community. Southeast Asian immigration and large movement of young white families to the suburbs account for most of the change. The total school district enrollment dropped from 100,000 in 1965 to 44,000 in 1982, with all of the decline registered among white students. Currently, the city is 80 percent white, while the schools are 52 percent white, 22 percent black, 18 percent Asian, 4 percent Hispanic, and 3 percent Native American. In 1977, the school board approved a voluntary desegregation plan using magnets, but one year later voted a mandatory plan with magnet options. The decline of white enrollment, loss of state aid, the multiple-ethnic population, and long bus rides continue to make the desegragation process controversial.

- Midtown has developed in the last decade as a national commercial service and distribution center due to its central location. The City grew rapidly in this century through regional trade and manufacturing. But with several new corporations, this City of 646,000 has attracted a new professional and educated middle-class and created a healthier economy. Since 1970, the city's population has slightly increased, with whites decreasing by 12 percent (to 52 percent), while blacks increased 25 percent. Currently, the public school enrollment is 108,000 of which 75 percent are black students. Following a 1972 mandatory desegregation order, white enrollment declined by 20,000. The private and parochial schools of the city serve 25,000 students. In the last five years, the public schools' total enrollment and racial composition have stabilized. This fact was recognized in the 1982 court consent decree which included provisions for expanding magnet schools and increased funds for the 26 remaining all-black schools.

- Rivertown is an older industrial City that has not participated in the massive changes in the economic base or population distribution that many cities of the region have experienced. The City prides itself on close cooperation and joint planning between business, industry and government, and this tradition carries over to the strong support of the business community for the public schools. Approximately one-third of the city's population is black, and this fraction has remained fairly constant. The school district has operated a voluntary desegregation plan since 1972, when the federal court ruled in its favor, developing a series of alternative and magnet schools to meet the voluntary desegregation goals, and continuing a tradition of quality educational options. Magnet schools now serve 15,000 students out of a total enrollment of 52,000, but there is continuing question among blacks of the capacity of the voluntary plan to provide equal opportunity for the 57 percent of district students who are black.

- Valley City is at the heart of one of the primary industrial regions of the Northeast. The City's economic foundation of mining and heavy industry has gradually diversified over the last two decades, and the City has emerged as one of the major commercial and corporate centers of the country. The 474,000 citizens still live mainly in ethnic neighborhoods most of which are naturally defined by the hills, rivers, and valleys which characterize the city. As with most older industrial cities, Valley City's population has declined--by 19 percent since 1970--while the surrounding metropolitan area population has grown--to over 2.26 million in 1980. The school district enrollment has declined by one-third since 1975 to 42,000 students. In the same period, the proportion of minority students increased from 44 percent to 51 percent. Even prior to the 1980 mandatory desegregation plan, parents' preception of declining quality and desegregation fear had produced a sharp decline in the number of white students entering public schools. Now, only half of kindergarten-age white children enter the public system, while 97 percent of minority children the same age are entering the public schools.

- Sister City is the older and smaller of two neighboring Midwest cities which anchor a growing metropolitan area of over 2.5 million that is a five-state center for commerce, transportation, culture, and a growing high technology industry. Sister City's economy, based on older labor-intensive industries and river commerce, has suffered from growth of the metropolitan area around it. The second and third generation youths from the ethnic neighborhoods have moved to the suburbs. New city residents are now mainly young professionals with few children, college students, and immigrants. In 1970, there were 50,000 public school students, 10 high schools and a minority enrollment of 10 percent, mainly black. The school district now has declined to 31,000 students and six high schools, and the minority enrollment has increased to 31 percent (15 percent black, 10 percent Southeast Asian, and 5 percent Hispanic). The city is becoming increasingly multi-racial and multi-cultural and district schools have had to adapt rapidly to these changes.

- Millville is an old, smaller Southern city (48,000 in 1980) built beside a major river. Since the 1950's, the economic base, of cotton mills and regional trade, has been replaced by new light industry from the North and the rapid growth of the city as a major medical center. Four large hospitals and the state medical school have given the city and county a renewed sense of propriety, and have attracted many professionals and middle class families to the area. The population of the surrounding county has grown by 12 percent since 1970 to 180,000 with the largest increase among blacks, currently 37 percent of the total. The county school district of 31,000 has become slightly more black since 1978; 49 percent to 52 percent. A shift in racial composition of the district took place, after the 1972 federal court order ending de jure segregation in the county, when 4,000 white students withdrew. A major current problem is balancing the racial composition of the inner-city schools as more whites (and middle class blacks) move to the suburban areas of the county.

Appendix II

CHARACTERISTICS OF MAGNET SCHOOLS NATIONWIDE: TOTAL NUMBER, STUDENT ENROLLMENT, RACIAL COMPOSITION, SCHOOL THEMES AND ORGANIZATION

One of the information needs that led to the Survey of Magnet Schools was the development of baseline data on the characteristics of magnet schools in local districts across the U.S. The Office of Program Evaluation requested that several kinds of data be collected and analyzed. The project design called for determining the extent to which magnet schools had been developed by local districts, both through the ESAA Magnet School program and through state and local funding. Second, there was interest in identifying the number of schools involved and the kinds of magnet programs being offered. Finally, since magnet schools were largely developed as part of school desegregation efforts, we were asked to analyze the racial/ethnic composition of magnet schools relative to other public schools.

The study design developed by the project staff, in conjunction with the ED Project Officer, included a plan for collection and analysis of data on the national population of magnet schools that would: (1) compile the types of data and analyses requested by the Department of Education, and (2) provide a national sampling frame for selecting the magnet schools survey sample. The data sources and methods of data collection were organized to produce a national data base on public school districts with magnet schools sample.

Two basic methods were used to develop the national data base on magnet schools. The first step was review of applications and records for ESAA magnet grants since 1976. From these sources, the staff compiled data on magnet enrollments, school characteristics, and grant budgets for the FY 1980 and 1981 years. These data provided a listing of local districts that initiated magnets at least partially through federal funds.

The second step was a review of school district lists for those districts that had a possibility of developing magnets. We included all school districts with a total enrollment of more than 20,000 students and smaller districts that had applied for magnet funds. The districts and schools were checked against NCES, OCR and other national lists and directories. In total, approximately 350 school districts were considered (275 large, urban districts and 75 smaller districts). Data on student enrollment, number of magnets, and racial composition were compiled from these sources. This information was combined with the ESAA information to comprise the magnet school data base.

The presentation of the data and analyses will be in two sections: first, the population of magnet schools as identified from both sources, and second, further analyses with the smaller group of ESAA funded districts.

Population of Magnet Schools in the U.S.

The following table summarizes the characteristics of the population of magnet school districts in 1981-82 school year. This tabulation is the first national data on districts and schools that has been available.

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*The definition of "magnet school" used was the magnet definition as described in Chapter 1.

Exhibit II.1

Population of Magnet Schools in U.S. Urban Districts

Total number of districts with magnets = 138
Total number of magnet schools = 1,019

Number of ESAA-funded districts with magnets (1981-82) = 64
Number of non-ESAA-funded districts with magnets (1981-82) = 74

Number of magnet districts with enrollment of more than 20,000 = 91
Number of magnet districts with enrollment of fewer than 20,000 = 47

Of the 138 districts that now have magnet schools, about two-thirds are in districts over 20,000 students, i.e., urban areas. Since we contacted all the large districts (275), we thus know that approximately one-third of all urban districts currently operate one or more magnet schools. The average number of magnets per district is just over 7, with wide variation across districts (Los Angeles' 84 magnet schools being the largest number identified). We should also note that there are now more districts funding their own magnets (74) than were funded under ESAA in the 1981-82 school year (64).

Exhibit II.3 provides a breakdown of the distribution of districts with magnets across the country according to the five commonly cited regions of the U.S.

Exhibit II.2

Regional Distribution of Magnet Districts

Southeast	24
Northeast	41
Southwest	14
Midwest	30
West	29
TOTAL	138

The Northeast region tends to have more magnet districts partly because there are more districts per state and thus more small districts with magnet schools. However, we also found that the magnet concept has been popular in northern and western urban districts that have sought voluntary approaches to desegregation over the last decade.

The third type of analysis of the total population of magnet districts is the average enrollment of students in magnet schools per district. Exhibit II.4 provides the results of averaging the district and magnet total enrollments across the 138 districts.

Exhibit II.3

Average Proportion of Students in Magnet Schools
(N = 138 School Districts)

	Mean	Range
Total district enrollment	54,882	3,000 to 925,000
Total magnet schools enrollment	3,193	125 to 25,013
Percentage of total district enrollment in magnet schools	5.2%	1 to 31%

The average size of a school district with magnet schools is over 54 thousand students. This figure is somewhat skewed by a few very large districts (over 500 thousand students). But, it does indicate that in comparison to the average total magnet enrollment (just over 3 thousand students), magnet schools are a relatively small part of a typical large district's total educational plan. By averaging the percentage of students in magnets in each district, we find that just over 5 percent of all students in these districts are in magnet schools or programs.

Analysis of Magnet Schools Grade Level and Racial/Ethnic Composition

Exhibit II.5 provides a breakdown of magnet schools by grade level. Among the 45 ESAA-funded (1981-82) districts, there were a total of 260 schools indicated as magnets: 62 percent are elementary magnets; 14 percent middle or junior high school magnets; and 24 percent senior high school magnets. Of the 1,019 total magnets in ESAA and non-ESAA funded districts (138 districts), approximately the same grade level proportions were found, except for 3 percent fewer elementary magnets.

With the sample of 45 school districts that were funded by ESAA Magnet School grants in FY 81 (1981-82 school year), we conducted an analysis of the magnet enrollments, racial composition, school themes, and types of schools. These analyses were conducted with available data from existing files and records on ESAA-funded districts. This analysis also coincides with the Department of Education's interest in the outcomes from federal magnet funding.

The 45 ESAA-funded districts contained a total 1,996 school units, of which 1,736 are non-magnets and 260 are designated as magnet schools. Thus, in these districts, an average of 13 percent of the school facilities are organized as magnet schools or components. Among the ESAA magnet schools, an average of 52.3 percent of the students are racial/ethnic minorities, while the non-magnet schools have an average of 43.9 percent minority students. These data indicate that magnet schools enroll an average of approximately 9 percent more minority students than non-magnets.

In the ESAA reporting requirements for FY 81 districts reported only the percent minority for all schools in the district for the coming year. There was not a racial/ethnic breakdown of students to be enrolled in magnet programs. But, in the FY 80 year, districts were asked to indicate percent minority in the magnet program and the total school, indicating whether all

Exhibit II.4

Magnet Schools Grade Level and Racial/Ethnic Composition

Magnet Grade Level	ESAA-funded No.	ESAA-funded %	All Magnets No.	All Magnets %
Elementary	158	62	601	59
Middle/ Junior High	39	14	173	17
Senior High	62	24	244	24
NA	5	-		
TOTAL	260	100%	1,019	100%

Racial/Ethric Composition: Magnets vs. Non-Magnets

Mean % Minority: (N = 260)	Magnet Schools	52.3%
Mean % Minority: (N = 1,736)	Non-Magnets	43.9%

Racial/Ethnic Composition: Magnet Program vs. Total School

Mean % Minority:	Magnet Program	47.8%
Mean % Minority: (N = 495)	Total School	51.6%

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the students were enrolled in the magnet. Thus, we can determine whether within-school magnet programs have higher or lower minority enrollments than the total school. We found that the percent minority was slightly lower in magnet programs, with an average of 47 percent minority in the magnet and 52 percent minority in the total school where magnets are located. Although this difference is small, the trend indicates that the magnet option is slightly more popular among white students in racially integrated schools that contain magnet programs.

Magnet School Themes

Exhibit II.6 provides a breakdown of magnet school themes by grade level in the 260 magnets funded in FY 81. (Some magnets have multiple themes, thus, total N = 322 themes.)

Several of the magnet themes are more prevalent at the elementary than at the senior high school level. These include: basic skills; fundamental; bilingual or language; Montessori or individualized learning; arts; sciences (and math); and academic.

Of fourteen theme categories, basic skills was identified as the most dominant with 54 or 17 percent of the total. Eighty-five (85) percent of the basic skills magnets were at the elementary level.

At the middle or junior high school level, the range of themes is small, with from 0 to 6 schools in any one theme category. Arts and basic skills were the most prevalent, having 6 schools in each category. In terms of percent of total middle/junior high magnets, basic skills and arts each represented 15 percent of the total.

The most dominant theme for magnet senior high schools is arts, representing 16 percent of all senior high themes. Humanities or social sciences is the second most dominant in senior high (15 percent).

Exhibit II.5

Magnet Themes by School Level

Theme	Elem.		Mid/Jr.		Senior		Total	
	#	(%)	#	(%)	#	(%)	#	(%)
Basic Skills	46	(21)	6	(15)	2	(3)	54	(17)
Fundamental	25	(12)	5	(13)	1	(1)	31	(10)
Bilingual or Language	24	(11)	4	(10)	2	(3)	30	(9)
Montessori/Individualized Learning	32	(15)	4	(10)	0	(0)	36	(11)
Vocational or Career	2	(1)	1	(3)	8	(12)	11	(3)
Arts	29	(13)	6	(15)	11	(16)	46	(14)
Sciences (and Math)	22	(10)	4	(10)	6	(9)	32	(10)
Humanities or Social Sciences	4	(2)	3	(8)	10	(15)	17	(5)
Health Careers or Science	2	(1)	1	(3)	7	(10)	10	(3)
Academic	25	(12)	2	(5)	8	(12)	35	(11)
Communications	0	(0)	1	(3)	3	(5)	4	(1)
Business	0	(0)	0	(0)	3	(5)	3	(1)
Computer	0	(0)	0	(0)	1	(2)	1	(.3)
Other	5	(42)	2	(17)	5	(8)	12	(4)
TOTAL	216	(100)	39	(100)	67	(100)	322	(100.0)

Across all themes and school levels, arts magnets are the second most dominant (basic skills, as mentioned, is the first), representing 14.3 percent of the total schools. According to the survey sample, only one magnet had a computer theme.

As would be expected, career-oriented magnets are more prevalent at the high school level than at either of the other school levels. Of the eleven vocational or career magnets, 73 percent (8) are found at the senior high school level. Also predominant at the high school level are business and computer magnets; these themes are noticeably absent at the elementary and middle/junior high levels.

Type of Magnet School or Program

There are four basic ways in which local districts have implemented magnet programs. There are total school magnets in which all the students in a building are in the magnet program for their total curriculum. Second, districts have developed school-within-a-school magnets where a portion of the building and the students are in a magnet curriculum. The third type is an add-on program that offers magnet theme courses for part of the day to some or all students in a building. Fourth, some districts have developed magnet center programs that offer magnet theme courses on a part-time basis to students from several different schools.

At each school level, total schools are more prevalent than any of the other magnet organizational types, accounting for 63 percent of the elementary programs, 62 percent of the middle/junior high programs, 61 percent of the senior high programs and 63 percent of all school levels of magnets.

School-within-a-school programs are the second most implemented, representing 21 percent of all organization types, followed by magnet centers (11 percent) and add-on programs (5 percent).

Exhibit II.6

Type of Magnet School or Program by Grade Level

Grade Level	Total School		School w/i School		Add-on Program		Magnet Center		Total	
	#	%	#	%	#	%	#	%	#	%
Elementary	91	(63)	27	(19)	9	(6)	15	(10)	145	(100)
Mid/Jr. High	16	(62)	8	(31)	1	(4)	1	(4)	26	(100)
High School	28	(61)	10	(22)	1	(2)	7	(15)	46	(100)
TOTAL	135	(63)	45	(21)	11	(5)	23	(11)	214	(100)

Note: The type was not specified for 41 schools

School-within-a-school programs represent approximately 30% of the total school programs at the elementary level, 50% at the middle/junior high level and 35% at the senior high level.

APPENDIX III
QUALITY OF EDUCATION

Contents

1. List of School Variables

2. Exhibit III.1: Descriptive Summary of School Variables

3. Exhibit III.2: Correlation Matrix, School Variables

4. Exhibit III.3: QED Scale Scores and Achievement Scale Scores

5. Exhibit III.4: Cross-Tabulations, Selectivity by Educational Quality

6. Exhibit III.5: School Level Multiple Regression Results

7. Notes on Methods of Analysis

8. Notes on the Quality of Education (or QED) Scale

List of School Variables

Outcomes

39. QED (Quality Education): Sum of observational ratings across 5 scales (Activity Rate, Interaction Rate, Sentiment Rate, Congruence, Realized Resources) describing various aspects of quality education.

40. Activity Rate: Sum of observational ratings across 5 items (each rated 1-10) describing behavior among both students and staff, both curricular and extracurricular.

41. Interaction Rate: Sum of observational ratings across 3 items (each rated 1-10) describing student-student, staff-student, and staff-staff proportion of opportunities taken to interact.

42. Sentiment Rate: Sum of observational ratings across 4 items (each rated 1-10) describing opportunities taken to contribute to helping other members of school community.

43. Congruence: Sum of observational ratings across 5 items (each rated 1-10) describing consistency between stated program goals and actual program operations.

44. Realized Resources: Sum of observational ratings across 5 items (each rated 1-10) describing degree to which both material and symbolic features of campus and program are fully utilized.

45. Reading Achievement:* (School reading score) - (district reading score). Constant of 22 added.

46. Math Achievement:* (School math score) - (district math score). Constant of 22 added.

38. QI (Quality Integration): Sum of observational ratings across 3 scales (demographic, organizational, and segregation) describing various aspects of quality integration.

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* Tests, metrics, time of testing, and grades tested varied widely across districts. However, in all cases, these factors are comparable between school and district within district.

List of School Variables

(continued)

Demographic Indicators (1982-1983 School Year)

36. Grades Served: Elementary 1; middle 2; high 3; other 4.

49. Enrollment.*

50. Number of years a magnet.

51. Percentage of white students enrolled.

52. Percentage of black students enrolled.

53. Percentage of other minority students enrolled.

54. Percentage of white staff in magnet.**

55. Percentage of black staff in magnet.

56. Percentage of other minority staff in magnet.

57. Percentage of total school staff that is magnet core staff.

58. Staff/student ratio in magnet.

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* All enrollment is enrollment in magnet.

** All staff measures include both teaching and administrative personnel.

List of School Variables

(continued)

Treatment Indicators*

37. Program Type (i.e., whole or part magnet): full-time 1; full-time within a school 2; part time within a school 3.

59. Theme of Magnet: Arts (incuding communications) 1; Sciences (including math and computers) 2; Business 3; Social Studies (e.g., law, foreign language, international studies) 4; Industrial/Health/Other Occupations 5; General Academic Emphasis (e.g., college prep, honors, traditional and fundamental schools, alternative schools) 6; Combinations (e.g., Academics and the Arts, Academics and Career Exploration) 7; Other 8.

48. Degree of Selectivity in Admissions: From 15 = reliance on some combination of tests, grades, references, and behavior indicators for admission, does not host special needs students, and remands to sending school for failure to maintain grade/behavior standards, to 3 = admissions by lottery, hosts special needs students, and does not remand.

61. Definiteness: From 100 = theme, curriculum, teaching methods, and staff suitability strongly coordinated to form highly coherent educational program with strong identity, to 0 = poor coordination of theme, etc., very fragmented educational program with little coherence and identity.

63. Special Treatment Accorded Magnet by District Administration: From 100 = permission to depart from rules, regulations, conventions of district with regard to budget/financial support, extra-curricular activities, educational program, code of discipline, parent relations, transfer/remand policies, access to administration and board, attainment of materials and supplies, access to special attention/political support, etc., to 0 = no permission to depart, treated no differently than regular school.

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* For purposes of readibility, variables are referred to in the text and tables by the underlined word or phrase. For example, the variable "theme of magnet" is referred to as "theme."

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List of School Variables

(continued)

65. Adequacy of Physical Plant, Equipment, and Materials for Program Needs: From 100 = fully adequate, to 0 = inadequate to point of inability to implement program.

67. Principal Quality: From 100 = exceptionally capable administrator/leader who exercises extraordinary entrepreneurial drive and skills in building school, to 0 = very poor principal who exercises no leadership and only minimal administrative skills.

69. Reputed Educational Rigor of Magnet Program in Comparison with Regular Schools in District: More rigorous 1; not more rigorous 0.

71. Discrepancy of Implemented Magnet Program from its Thematic Construct (i.e., extent to which magnet is not what it claims to be thematically): From 100 = maximum discrepancy between thematic assertion and implemented reality to 0 = maximum congruence.

Costs*

72. Cost per pupil.

73. Salary cost per classroom teacher.

74. Personnel costs per pupil.

75. Non-personnel costs per pupil.

76. Pupil transportation cost per pupil.

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* Definition/construction of all cost variables is discussed in Chapter V and Appendix V.

Exhibit III.1

Descriptive Summary of School Variables

Variables	Mean	S.D.	Minimum	Maximum
Outcomes				
39. QED (Quality Education)	68.31	13.63	32	92
40. Activity Rate	67.36	16.45	20	98
41. Interaction Rate	72.62	15.50	33	100
42. Sentiment Rate	71.89	16.32	28	100
43. Congruence	66.11	19.78	10	100
44. Realized Resources	62.00	22.25	0	100
45. Reading Achievement*	34.78	16.59	13	66
46. Math Achievement*	33.25	17.18	0	69
38. QI (Quality Integration)	64.73	11.94	32	87
Demographic				
36. Grades Served	2.98	0.89	1	4
49. Enrollment	571.82	426.87	51	1670
50. Number of Years a Magnet	4.98	2.73	1	12
51. % Whites Enrolled	54.98	17.88	21	98
52. % Blacks Enrolled	37.16	16.15	1	79
53. % Other Minority Enrolled	7.84	12.12	0	59
54. % White Staff	75.47	15.71	31	100
55. % Black Staff	20.49	14.45	0	52
56. % Other Minority Staff	3.16	6.22	0	25
57. % Total School Staff that is Magnet Core Staff	67.22	47.21	1	100
58. Staff/Student Ratio in Magnet	22.91	16.06	6	75

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* For variables 45 and 46, Reading Achievement and Math Achievement, N = 32. For all other Outcome, Demographic, and Treatment variables, N = 45.

Exhibit III.1

Descriptive Summary of School Variables

(continued)

Variables	Mean	S.D.	Minimum	Maximum
Treatment				
37. Program Type	1.64	0.86	1	3
59. Theme	4.73	2.40	1	8
48. Selectivity	8.87	3.56	3	15
61. Definiteness	70.62	29.95	3	100
63. Special Treatment	59.02	31.63	1	100
65. Plant, Equipment, Materials	77.98	24.72	5	100
67. Principal Quality	61.71	24.96	20	100
69. Rigor	0.49	0.51	0	1
71. Discrepancy	36.64	36.69	0	100
Costs*				
72. Cost per Pupil	277.26	86.33	147	485
73. Salary Cost per Classroom Teacher	2349.18	682.70	1371	4189
74. Personnel Costs per Pupil	183.26	63.31	59	301
75. Non-Personnel Costs per Pupil	94.87	59.24	21	262
76. Pupil Transport Costs per Pupil	18.83	13.84	2	51

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* N = 23 for all costs variables. (Data were unavailable on 22 schools.)

Exhibit III.2

Correlation Matrix of Magnet School Variables*

			Outcomes									Demographic											Treatment									Costs				
		Variable	39	40	41	42	43	44	45	46	38	36	49	50	51	52	53	54	55	56	57	58	37	59	48	61	63	65	67	69	71	72	73	74	75	76
Outcomes	39	QED (Quality Education)		.81	.61	.81	.59	.73	.34	.39	.62													-.32		.43	.55		.56		-.49					
	40	Activity Rate			.47	.75	.38	.35	.50	.56	.58															.44	.42		.52	.34	-.41					
	41	Interaction Rate				.44	.58	.40	.39	.39	.41										.29	-.34	.33	-.37		.29	.57		.48		-.26					
	42	Sentiment Rate					.32	.46		.33	.57			-.27												.38	.43	.26	.46		-.33				.39	
	43	Congruence						.28	.33	.40	.26													-.32		.28	.47		.33		-.41			.39		
	44	Realized Resources (E)									.40		-.30											-.33			.34		.32		-.29					
	45	Reading Achievement								.94	.41					.29	-.38								.52	.35	.44		.56	.37			.44			
	46	Math Achievement									.43						-.36								.52	.38	.45		.54	.41						
	38	QI (Quality Integration)													-.34	.36										.33	.48		.54		-.37					
Demographic	36	Grades Served												-.35														-.30					.50	.46	-.50	
	49	Enrollment																	.27		.50		-.49									-.53		-.40	-.37	
	50	Number of Years a Magnet																																	-.48	.40
	51	% White Students														-.75	-.48															-.38				
	52	% Black Students																-.28	.31		.40		-.47													
	53	% Other Minority Students																	-.30	.44			.28		-.44							.37	.42	.43		
	54	% White Staff																	-.84		-.42		.43										.58	.41		.49
	55	% Black Staff																		-.25	.41		-.46										-.62	-.42		-.50
	56	% Other Minority Staff																							-.29					-.25			.45	.46		
	57	% Staff Magnet Core																				-.53	-.94					-.31	.30	-.41						
	58	Staff/Student Ratio																					.57						-.32							
Treatment	37	Program Type																							-.33			.31	-.28	.31						
	59	Theme																																		
	48	Selectivity																											.48	.30						
	61	Definiteness																									.49	.34	.49	.34	-.73					
	63	Special Treatment																										.33	.44	.27	-.40					
	65	Plant, Equipment and Materials																												.30	-.33				.34	
	67	Principal Quality																													-.34	.39				
	69	Rigor																																		
	71	Discrepancy																																		
Costs	72	Cost per Pupil																															.39	.73	.68	
	73	Salary Cost per Classroom Teacher																																.71		
	74	Personnel Costs per Pupil																																		
	75	Non-personnel Costs per Pupil																																		
	76	Pupil Transportation Cost per Pupil																																		

* Pearson r's shown are .25 or more, with p ≤ .05. N = 45 for all variables except: 45-46 (N = 32); 72-76 (N = 23). All correlations are computed on the minimum N available (e.g., 48 with 39, N = 45; 48 with 46, n = 32; 48 with 72, N = 23).

Exhibit III.3

QED Scale Scores and Achievement Scale Scores

District	School	Activity Rate	Inter-action Rate	Sentiment Rate	Congruence	Realized Resources	QED	Reading Achievement Scale Score	Math Achievement Scale Score
Sunshine City	Carpenter	98	100	90	100	65	91	56	58
	Kenmore[a]	40	70	90	60	100	70	14[b]	16[b]
	Grable	84	97	90	80	80	85	27	14
Midtown	Advance[c]	72	73	70	60	53	65	66	66
	Plains[c]	80	77	88	62	68	74	51	48
	Outland[c]	80	87	83	78	63	78	66	69
Clay City	Elmore[c]	80	90	73	68	78	76	13[b]	21[b]
	Green	68	100	65	70	65	72	39	48
	Maxim	90	73	78	52	18	62	44	52
Rivertown	Wilson[c]	78	90	85	84	70	81	NA	NA
	Stage	90	93	88	90	93	91	NA	NA
	Players	86	73	78	84	85	82	NA	NA
Foundry City	Dancer	70	90	73	46	60	66	40	30
	Achiever	76	63	63	74	70	70	66	60
	Tratel	60	60	48	68	0	48	43	35
Regional City	Marshland	73	87	90	90	68	81	56	50
	Little	72	87	85	84	63	78	52	49
	River	80	90	85	80	50	77	61	58
Evergreen	Madison[a]	68	67	65	64	58	64	34	34
	Nathan[a]	70	70	75	78	70	73	21	22
	Open	60	80	63	55	85	68	21	17
Steeltown	Tolman	43	67	48	62	45	53	25	23
	Dorsey	60	67	73	60	53	62	25	23
	Forest	58	60	68	78	43	62	22	22
Valley City	Lanier[a]	66	63	73	78	80	7[illegible]	NA	NA
	Peters[a]	90	33	93	10	90	88	NA	NA
	Creative	60	77	50	78	85	70	NA	NA
Millville	Baines	70	57	78	84	48	69	NA	NA
	Porter	66	70	70	46	30	56	23	23
	Donaldson	92	87	93	95	93	92	24	23
Sister City	Granite[a]	74	60	68	73	75	71	24	21
	Bethel[a]	62	77	80	64	58	67	42	34
	Dewey	73	87	80	85	75	80	30	31
Starville	Starville[a]	72	63	78	78	75	74	22[b]	22[b]
	Lincoln[a]	52	50	85	50	28	53	19[b]	20[b]
	Larriat[a]	50	63	58	68	38	55	23[b]	23[b]
Paradise	Progressive	20	60	28	18	50	32	18	0
	Patton	54	57	58	48	38	51	22	25
	Jefferson	30	50	33	66	25	43	24	27
Old Fort	Trade	72	63	75	25	58	59	NA	NA
	Harbor	50	73	55	56	78	61	NA	NA
	Arts[c]	72	90	100	64	90	81	NA	NA
Centerville	DeVinci	48	70	50	84	80	67	NA	NA
	Jackson[a]	74	67	68	48	65	64	NA	NA
	Sunset[c]	48	40	48	30	28	39	NA	NA

[a] Part-time program within a school.

[b] Magnet program scores were not available. The reported score is for the entire school. Hence, caution must be used in interpreting this score, for the magnet program may serve only a small portion of the school's students.

[c] Full-time program within a school.

Exhibit III.4

Cross-Tabulations, Selectivity by Educational Quality

A. QED vs. Selectivity

	QED ≤68	QED > 68	
Selectivity Index < 15	21	18	39
Selectivity Index = 15	0	6	6
	21	24	45

$\phi = .37$
ϕ max = .46

B. Reading Achievement Scale vs. Selectivity

	Reading Achievement Scale ≤ 35	Reading Achievement Scale > 35	
Selectivity Index < 15	19	8	27
Selectivity Index = 15	0	5	5
	19	13	32

$\phi = .52$
ϕ max = .52

(The figures and the test for the math achievement scale scores are identical.)

C. Reading Achievement Scale vs. Selectivity

	Reading Achievement Scale ≤ 35	Reading Achievement Scale > 35	
Selectivity Index < 12	16	7	23
Selectivity Index ≥12	3	6	9
	19	13	32

$\phi = .33$
ϕ max = .76

(Again, the figures and the test for the math achievement scale scores are identical.)

Exhibit III.5

School Level Multiple Regression Results

A. QED (39)

Regressed on: Definiteness (61)
Special Treatment (63)
Principal Quality (67)

Variable	Multiple R	Beta	N = 45
61	.42714	.07270	
63	.58176	.35373	
67	.65886	.36902	

B. Reading Achievement Scale (45)

Regressed on: Selectivity (48)
Definiteness (61)
Special Treatment (63)
Principal Quality (67)

Variable	Multiple R	Beta	N = 32
48	.52241	.36813	
61	.56168	-.00850	
63	.63702	.28088	
67	.64871	.19159	

C. Math Achievement Scale (46)

Regressed on: Selectivity (48)
Definiteness (61)
Special Treatment (63)
Principal Quality (67)

Variable	Multiple R	Beta	N = 32
48	.51811	.38432	
61	.57082	.04091	
63	.64220	.29853	
67	.64741	.12805	

NOTES ON METHODS OF ANALYSIS

The chapter on magnets and educational quality relies on a blend of qualitative with quantitative modes of analysis. The questions treated were distilled from a thorough review of the magnet literature, the 1981-1982 pilot study, and suggestions from advisory panelists, the Project Officer, and colleagues. They are not hypotheses in any formal sense and some are amenable to one mode and some to another mode of analysis.

The quantitative mode was limited severely by the government's decision to cut our original research design in half, eliminating the sampling of non-magnet systems and schools. Our comparisons are thus confined to differences between magnet programs and schools, although we have some data from each system on its non-magnets to aid comparisons. With a few exceptions, data collection was preplanned carefully to enable the quantification of variables. The exceptions include our ratings of qualitative field reports in the data preparation stage on such things as comparative rigor of magnet programs.

The special strength of the analytical blend used comes from the fact that the import of statistically identified relationships between variables can be examined in depth by recourse to the field reports and that the field reports themselves led us to try to quantify certain concepts in the course of data preparation. The weakness of the blend is a kind of corrollary to this strength: greater confidence in the "findings" than may be warranted tends to grow up from the power of movement back and forth between measures and field reports. Researchers who read this chapter will understand that the techniques of correlation and multiple regression are used here on samples of 32 and 45. They are intended more as tools for ordering multivariate analysis in this study than as coefficients that have significance for generalizing from the samples to universes of school systems and schools.

These caveats do not signify a drawing back from responsibility for our announced findings, however. The field reports were carefully prepared by trained data collectors. The teams came from two separate research organizations, providing a kind of intramural device for gauging reliability by "split-half" procedures. Moreover, our most vulnerable measures "held up" in the analysis. The QED scale, composed of separate team ratings of 23 complicated facets of in-school educational processes, was refined by eliminating 2 facets from the reports. It and the QI scale, developed in the same way, fit into the larger multivariate pattern of harder and softer measures in logical and expected ways. The two scales support our original aim, which was to learn whether quasi-ethnographic observations taken during brief visits could become indicative of trends and relationships. The note which follows presents the QED scale and its refinement because it has many future uses.

NOTES ON THE QUALITY EDUCATION (OR QED) SCALE

1. Development and Use

The items to be rated are reproduced on the following two pages. They were developed on the basis of field experience in the pilot study and from a review of effective schools research.*

Each of the five subscales was intended to measure a facet of education treatment quality, in ways described operationally on the chart below. After a day of observing and interviewing in a school, each of three field researchers filled out the chart independently, prior to discussion. The team then matched ratings and reached a team rating by consensus on each item. This allowed a pooling of observations which compensated for behavior witnessed by one researcher and not by others. Congruence was high on most items. Where it was lowest across 45 charts, the item was deleted, as described below.

2. Final Scoring Procedures for QED Scale Scores

a. All five subscales were retained.

b. Items 3 and 4 on subscale B were deleted because of field use experience and empty or Don't Know cells.

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* For examples of the latter, see William Bickel (ed.), "Effective Schools," Educational Researcher 12(4): April 1983.

SITE: ______________________________
DATE: ______________________________
DATA SOURCE: ______________________________
TEAM MEMBER: ______________________________

____
School Name

____
Grades Served

Type of Magnet: Part _____
Whole _____

CHART 19

Education Treatment Quality

Rate from 1 (Low) to 10 (High):

A. Activity Rate: observational rating of task-based behavior ongoing among both students and staff, both curricular and extracurricular

_____ 1. Proportion of students taking more than minimal course load (in # of items or difficulty level vs. district)

_____ 2. Proportion active in extracurricular activities

_____ 3. Number of current announcements of events on bulletin boards

_____ 4. Proportion of faculty stays on campus beyond formal end of classes

_____ 5. Level of educational activity observed in classes in session

B. Interaction Rate: observational rating of student-student, staff-student, and staff-staff and non-staff-student proportion of opportunities taken to interact

_____ 1. Student-student sociability on campus, out of classroom

_____ 2. Quality of staff-student interaction on campus, in classrooms, P's office, guidance office, cafeteria, gym (education-related vs. other)

_____ 3. Frequency of staff-staff dialogue on program matters

_____ 4. Admin-teachers' frequency of oral interaction

_____ 5. Frequency of parents, other volunteers on campus to share help in program (according to staff and parents)

C. Sentiment Rate: observational rating of opportunities taken to contribute to helping other members of school community

_____ 1. Availability and appropriateness of academic services, formal and informal, from tutorial to remedial to counseling

_____ 2. Student access to equipment (e.g., drama, music, computers, science, language lab) when desired/interested

_____ 3. Affection expressed for school community

_____ 4. Provision of recognition, appreciation of student growth or level of effort

CHART 19

(continued)

Education Treatment Quality

D. Congruence of Tasks with Mission: observational rating of the consistency between stated program goals and the actual program operations

______ 1. Opportunities to try out, perform roles learned (e.g., learning through doing)

______ 2. Staff statements about their sense of congruence of goals and means

______ 3. Intramural competition based on the theme

______ 4. Same as 3, but extramural

______ 5. Reputation of program based on study activities and learning which are consistent with theme and goals

E. Extent of Realized Resources: observational rating of degree to which both material and symbolic features of campus and program are fully utilized

______ 1. Level of ingenuity in multiple usages for space

______ 2. Staff advocacy for allocation of needed resources from district and outside district

______ 3. Cross-group, cross-grade opportunities in schedule design for student self-actualization, tryout and advanced learning

______ 4. Support for student and staff initiatives to vary routines, try new learnings

c. Thus, the usable scale comprised 21 items: A, items 1-5; B, items 1, 2 and 5; C, items 1-4; D, items 1-5; and E, items 1-4.

d. School scale scores were computed by adding up item ratings and dividing by the number of items. The product was then divided by the hypothetical maximum possible score to get a percentage. For example, Millville's Donaldson got a sum of 184 on 20 items (with one item rated as NA). The maximum possible for Donaldson is 200. Hence, the school score is .92.

e. District scale scores were computed by adding the three school scores and dividing by hypothetical maximum possible for the district. Hence, Millville has a combined or summed score of (184 + 144 + 117) = (445 ÷ 620) [given Donaldson's one NA item, which drops 10 points off the hypothetical maximum] = .72.

3. Interpretation

We believe the QED measures observable features of a school's tendency to:

- Encourage students and staff towards "on-task" educational activity.
- Engage students and staff in the larger life of the school community.
- Nurture interaction and communication among and between students, staff, and teachers.
- Provide opportunities for students to secure assistance they may need for learning.

- Recognize and thereby encourage student growth.
- Create a sense of shared community that centers around the tasks of learning.
- Forge a strong identity and ethos that is rooted in daily activities and expressions of school goals and aims.
- Convey school goals and expectations to all students and staff.
- Provide opportunities for students to learn through doing, to try out their "learnings."
- Make full and creative use of material and symbolic features of campus and program to promote learning and cohesiveness.

A magnet with a *high* score was posited to be one where students and staff were actively engaged in learning and community-building tasks; administrators, teachers, and students interacted and communicated with each other, and not just in the classroom; staff and students shared and expressed a sense of community; daily activities were consistent with the stated goals and aims of the program; and resources (both symbolic and material) were fully utilized. The construct validity of the scale is supported by the pattern of QED score correlations with other dependent variables and with relevant treatment or organizational variables. The reliability of the scale is suggested by the fact that the ratings were made independently by teams from the two firms of Lowry and Abt, yet the resulting distributive array is stable (see Exhibit III.1) and correlates with strictly objective arrays from documentary data. The two sets of teams were conjointly trained in use of the QED and two Lowry team members joined Abt teams on the visits to two sites.

We are especially encouraged by the QED and the QI rating scales because they both suggest that reasonably sturdy observations of complex events within schools can be made by well prepared field researchers. These cannot equal more rigorously formulated data, to be sure, but classroom interaction and ethnographic measures take many months to record and become prohibitively expensive to implement. We believe we have located a fertile middle ground between survey responses of teachers or students and costly social psychological or ethnomethodological approaches.

SITE VISIT REPORTS ILLUSTRATE FACTORS IN THE SUCCESS OF MAGNETS WITH HIGH EDUCATIONAL QUALITY

In the following portion of Appendix III, we have focused on four of the 10 schools (in the sample of 45) that had scores on the QED between 80 and 90, contrasted with an average of 68. And, we have examined the case data on three of the schools with QED scores of less than 55. These seven constitute exceptional schools. Our aim is to illuminate the ways in which magnets succeed or fail in the task of creating and maintaining a high quality educational environment.

A. Donaldson Secondary in Millville Excels Through an Entrepreneurial Principal and High Coherence of the Theme, Staff and Program Identity.

Donaldson Secondary is in its second year as a fine arts magnet for grades 5-9. It serves 375 students, and offers courses in music, theatre, and visual arts in addition to the standard district curriculum for the middle/junior high grades. It has the highest QED score of our sample.

Donaldson's selectivity primarily involves self-selection according to the theme: it requires a very basic audition and applicants are interviewed to determine interest in the arts. Further, a C average and good conduct and attendance records are required for admission.

Donaldson has had some problems in securing support and "special treatment," chiefly from the school board. The board is very conservative both educationally and fiscally, and has been ambivalent about supporting something as innovative (for this district) as an arts program. (The board also had concerns initially about the ability of an arts theme to draw support from black as well as white parents. These were allayed during the first year, when the school drew enthusiastic response from blacks.) This has translated into facility problems for the school: the physical plant is in poor condition and does not have adequate rehearsal or studio space. In spite of board resistance, the district administration has supported the school, and has made strong and continuing efforts to win the board over.

This sag in "special treatment" for Donaldson has been offset by two factors: (1) enthusiastic support from parents from the beginning; and (2) an exceptional principal. The principal, a woman of high drive, energy, and entrepreneurial ability, was the key actor in bringing magnets to Millville. Prior to becoming principal at Donaldson, she served as ESAA project director for the district. Under her leadership and with a push from the federal court, Millville adopted magnet schools. As ESAA director, she led the planning effort for all of Millville's magnets. She currently serves a dual role as Magnet Director for the district and principal of Donaldson. As a result of her high visibility, she is able to offset the board's lack of support by reaching out directly to parents. And, she long ago earned the full support of the superintendent and other top administrators.

The Donaldson principal has a strong vision of what the school should be. She has been allowed to hand-pick her staff, selecting faculty who share this vision and are willing to work hard to make it a reality. She sought teachers with a fine arts background or high interest in the arts, even for the academic areas. In addition, she secured the support of the board and special permission from the state department of education to hire professional artists and specialists from the community.

While it has a strong and definite identity, Donaldson is still working out some conflicts along these lines. As in many arts magnets, the faculty is made up of three types of teachers: 1) those who teach the standard academic curriculum; 2) those who teach the arts curriculum but are professional educators; and 3) professional artists and performers who teach performance courses. While all Donaldson staff are enthusiastically committed to its arts theme and struggle to maintain flexibility and communication, there are natural divergences of interests and priorities across the three groups. Tensions sometimes arise. Most particularly, a firm consensus about the proper balance between the arts and academics has not yet developed, and there is some conflict over whether Donaldson is a fine arts specialty school with academics, or an academic school with a fine arts emphasis. Faculty and staff are aware of this tension, and tend to view it as a normal part of "the shake-down period."

B. Stage Secondary in Rivertown Has Received Strong District Leadership, and Benefitted from a Highly Resourceful and Committed Principal and Staff

Stage is in its tenth year as an outstanding creative and performing arts magnet for grades 4-12. It serves 1,053 students, and, in addition to the standard district curriculum for the grades it serves, offers courses in visual arts, dance, drama, creative writing, music (vocal, instrumental, composition), music theater, and fine arts. It has the second highest QED Score in our sample. (Achievement data were not available.)

Student admission to Stage is moderately selective. Auditions are required, but no other criteria are applied for admissions. However, in order to remain at Stage, a student must maintain high attendance and grades above a C in the arts areas.

Stage began with the full support of the district administration and board, and has received substantial "special treatment" throughout its history. In fact, Stage is the brainchild of a former superintendent, himself a strong leader with deep commitments to integration and educational innovation. However, because of Rivertown's longstanding financial problems, this special treatment has been more a matter of providing key political and administrative resources--particularly a series of critical "exceptions" from district norms and policies--than a matter of providing dollars.

For instance, the former superintendent provided direct leadership in designing, planning and beginning the school. His initial choice for Stage's principal was a capable administrator with no arts background. The superintendent sought to balance this weakness by creating the day-to-day leadership position of Artistic Director for a well known arts teacher with strong leadership and entrepreneurial abilities. Although this teacher did not have the proper administrative credentials, the administration and board waived this technicality.

The arts teacher was instrumental in establishing Stage. He is now in his eighth year as its principal, and has built a solid track record as an exceptionally strong, dynamic, and entrepreneurial leader. In fact, his leadership has countered the failure of the district to provide a very critical part of "special treatment": adequate funding.

Throughout its history, Stage has labored under severe financial constraints. From the beginning, the school was very dependent upon support and contributions from parents and the "creativity" of the staff in acquiring musical instruments and other materials and equipment. The principal, beginning when he was Artistic Director, painstakingly nurtured this outside support and developed it into a non-profit parent/business/community organization. This organization provides an extraordinary level of support for Stage, financial and otherwise. For example, this group has raised and made substantial money contributions, purchased and donated musical instruments, and paid for significant rennovation to the building. The group also pays all or part of the salaries of several staff. This enables the principal to supplement his district-provided teacher staff, and, most importantly, to "get around" certain technical constraints (e.g., certification requirements, which artists and performers usually do not meet).

The leadership strength of the principal extends to curriculum and instruction. With the support of district administration, he has been able to handpick Stage's staff. This is no small "special treatment," for Rivertown is heavily unionized and has been rocked with declining enrollment and teacher surpluses during the past several years. Stage teachers are protected by the district administration from layoff or surplusing, however. Further, unlike other principals, the Stage principal is not required to hire surplused teachers: he has been allowed to hire and replace faculty based strictly on their "fit" with Stage's theme and goals.

This has enabled Stage to develop a strong, coherent identify as an arts school, with primacy given to the arts. This plays out in two major ways. First, arts teachers (and professional artists) are expected to take the lead at Stage: academic teachers are expected to come alongside. While there continues to be tension around this issue, academic teachers frequently draw on upcoming arts activities for their own classrooms and everyone works to maintain flexibility and communications. Second, everyone is expected to get involved in arts productions and activities, often spending evenings and weekends selling tickets or making sets. In sum, staff and students at Stage have a strong sense of what is expected, and what the school is all about.

C. Peters High in Valley City Has Succeeded Due to the Innovative, Energetic Principal, the Highly Postive Program Identity and Coherence With Staff Goals and Talents

Peters High is a part-time magnet program within a large high school. The Peters magnet serves 278 students in grades 9-12, and is in its fourth year of operation. It offers two themes: 1) Army Junior ROTC; and 2) Law & Public Service. The first, JROTC, is the major offering, serving 88 percent of the magnet students. The Law & Public Service program has just begun, and currently serves only ninth graders, but is expected to expand annually. These programs are taken as electives in the regular high school curriculum offered by the host high school. The Peters magnet program has the fourth highest QED score in the sample. (Achievement data were not available.) Peters also scores high on the QI index. Its desegregative properties are discussed in Chapter 4.

Peters is only moderately selective for its magnets: applicants are screened for both JROTC and the Law & Public Service based on grades, attendance and conduct; however, no formal standard is set -- rather, seriously problematic students are rejected. In addition, applicants for the JROTC program must "pass" an interview with magnet staff, and receive satisfactory recommendations from their parents. Finally, Law & Public Service students are expected to maintain a B average in the program.

The Peters magnet is essentially an island in the midst of a very "tough" school with a history of racial conflict (see Chapter 4). It has received little support or special attention from the district, partly because it is so small and partly because the Valley City administration does not take a keen interest in any of its magnets.

Rather, the Peters magnet is the creation of the Peters High School principal, who turned to the magnet notion as one of several strategies to help stabilize and restore the school. This principal, who is energetic and well-respected as a solid, innovative leader, took over the high school one year after a serious race riot. The JROTC program had been operating for one year also. Seizing the opportunity, the principal gained administration and board approval to "magnetize" the JROTC program. The JROTC staff, who were already in place, welcomed this move, for it gave the program even more "specialness" and identity. A few years later, the principal again took the initiative and recruited one of his regular social studies teachers to begin the Law & Public Service program.

These small programs have become stable enclaves, where both black and white students get an opportunity to be a part of a highly visible, structured, and "definite" community. The magnet staff, while tiny, have very clear goals and visions of what their programs should be. These are shared by the principal and embraced by the students, who resonate to the sense of "specialness" that being part of the magnet carries.

D. Carpenter Secondary in Sunshine City has Educational Quality From its High Interest Theme, Support From the Community and Commitment From Administation and Staff

Carpenter Secondary in Sunshine City serves 625 students and is in its fifth year as a science/math/computer technology program for grades 7-12. In addition to standard courses in science and math (and a strong regular academic curriculum), Carpenter offers courses in astronomy, space science, medical biology, finite math, analytic geometry, computer programming, Russian, and government in space. It is exceptionally well-equipped, and also provides students with numerous and varied special field trips to nearby universities and laboratories and a steady stream of high caliber guest speakers. Carpenter's QED score is equal to Stage's, and its students test considerably above the district average in reading and math.

Carpenter does not use formal academic criteria for admissions, nor does it have any attendance or conduct requirements; and it was rated "moderately selective." Applicants are admitted primarily on the basis of interest in and motivation to pursue the theme. However, applicants' academic achievement in science and math is reviewed to assess whether or not they can keep up with Carpenter's decidedly more rigorous curriculum in these areas.

Carpenter's "definiteness" is in significant part a function of its unique and extraordinarily rich curriculum, which extends the school out into the "high tech" and scientific communities that surround it. The curriculum was designed by nine subcommittees (each focusing on a particular implementation issue or substantive area) involving almost 100 people, over one-third of whom were from the local scientific community and nearly one-half of whom were from outside the district.

A second source of Carpenter's high "definiteness" is the faculty and staff, several of whom have doctoral degrees. All staff and faculty applicants were screened by a panel of scientists, district administrators, and community representatives. And, faculty and staff are enthusiastically committed to making Carpenter into a "dream" science/math/computer magnet.

Carpenter has received the highest levels of support and special treatment from the district administration since the earliest planning stages. For instance, the scope of authority given to the nine planning committees was without precedent in the district, and was delegated with the full support and participation of the administration. Further, the district has provided ample funds to equip laboratories and classrooms with the most up-to-date equipment. The school even has laser/holography apparatus.

Finally, Carpenter's principal is also very able and well-respected. He was selected for the position because of his record of leadership and innovation, and his experience in establishing other programs in the district. He is perhaps less of an entrepreneur than some of our other highly ranked principals, and Carpenter does not carry his personal "stamp" as several of the other magnets do. This is primarily due to two factors. First, Carpenter is the brainchild and product of the district administration and the larger scientific community; hence, "strong-man" leadership has not been essential for its success. Second, Carpenter has a highly independent faculty, hand-picked for their scientific talents, their initiative and their vision of what Carpenter should be. The principal exercises a very appropriate leadership style for such a setting: he has established an extensive system of faculty committees, and widely shares authority and responsibility for program development and school activities with his teachers and staff.

E. Synthesis

All four of these high QED schools illustrate the strong relationships among educational quality, definiteness, special treatment, and principal quality that we discussed earlier in this chapter. These relationships hold in spite of differences among these four schools in geographic location, size, theme, and the specifics of how the relationships themselves play out.

Two, Carpenter and Stage, have all three treatment elements in abundance. The other two sag in one key area--special treatment. However, this lack is offset by exceptional entrepreneurship on the part of Donaldson's principal, and a combination of strong leadership by Peter's principal and the "ready-made" definiteness provided by the JROTC program.

SITE REPORTS ILLUSTRATE HOW SOME MAGNETS PRODUCE LOW EDUCATIONAL QUALITY

We also examined the site reports on three schools with the lowest scores on the quality ratings to see what our field reports could tell us about the sources of their low educational quality.

A. Progressive School in Paradise has Experienced Low District Support, Poor Magnet Identity and Weak Leadership

Progressive School in Paradise originally began in the early 1970's as a small, albeit highly visible, alternative education school for grades K-6. As is characteristic of the alternative education model, during these early years Progressive focused on providing a relaxed and intimate atmosphere for teachers and students, student-initiated and centered learning and teaching, an "open" atmosphere, extensive parent and student participation in school governance and curriculum/instructional planning, and "counseling-oriented" discipline. In 1977, it was merged with another alternative school in the district, which was not an alternative education model but rather an evening high school serving students who did not wish to attend during regular school hours. In sum, Progressive has existed in its present form for six years. It serves 291 students in grades K-12, and struggles to offer the basic district curriculum for these grades. Progressive has the lowest QED score of our sample, and its high school students test substantially below the district average in reading and math.

Progressive is a moderately selective school. There are no academic or behavioral entrance requirements as such. However, the school does remand students, particularly for behavior and social problems. And, it does not host special needs students.

Progressive has had very serious problems with support, identity, and leadership throughout its history. In its original form as an alternative education elementary, Progressive enjoyed the support of the district administration and the strong leadership of an enterprising, energetic principal committed to alternative education. Under her leadership, Progressive developed rapidly from a tiny pilot program to a full-size school. However, even during these growth years, Progressive went through two principals and four locations.

In 1973, a very conservative school board took control in Paradise. This board was deeply committed to fundamental education--that is, back-to-basics curriculum, drill and workbook instruction, teacher-centered classrooms, very strict discipline, patriotism, large class size, and no federal funds--and held no brief for Progressive or the educational ideas it represented. However, this board also wanted to mount fundamental schools, partly to put into practice their educational ideas and partly to provide havens for parents who wished to escape the sweeping desegregation plan that had just been ordered by the court. In this context, diversification of district offerings--as exemplified by Progressive on the one hand and fundamental schools on the other--became an important public theme of the conservatives on the board.

Progressive became a political football: on the one hand, the conservative board majority did not support the educational ideas the school represented; on the other, the school was useful as an example of diversity. The district administration was caught up in the turmoil and drawn off by the larger desegregation problems confronting the district. The superintendent was fired and the administration lost control both of Progressive and of the fundamental schools being rapidly implemented by the board.

For the remainder of the 1970's, Progressive was buffetted by the merger with the high school (which was not compatible with its alternative education theme), the departure of its "founding" principal, three more turnovers in the principalship, and two more location changes. It also suffered from considerable "dumping" of seriously troubled high school students, and extensive turnovers in faculty.

In short, Progressive long ago lost what definiteness it possessed as an alternative education model. Today, while it still sounds a few notes of this theme, it is essentially a deeply fragmented expression of its troubled history. It has no coherent educational program. Rather, Progressive's teachers struggle on an ad hoc basis to cope with severe inadequacies of materials and equipment, very substandard physical facilities, underenrollment, staff shortages, and endless problems of class scheduling to meet district standards for course offerings.

The current principal does not provide any countervailing leadership. He is in essence an amiable caretaker, in his first year at Progressive. He is nearing retirement, and has little interest in curriculum and instructional issues. In fact, he has always seen himself as an educational traditionalist, and, while he has no negative feelings about alternative education, neither is he an advocate.

B. Sunset High in Centerville has had Indifferent District Leadership and Support

Sunset High is a full-time, college preparatory magnet program within a large, comprehensive senior high school in Centerville. It has been in operation four years, and serves 199 students. Sunset does not offer curricular innovation; rather, it provides a tightly-scheduled "track" of courses for "average" students interested in preparing for college. Sunset has the second lowest QED score of our sample. (Achievement data were not available.) Sunset also has a low rating on integration quality.

Sunset is selective. Applicants and their parents must undergo a formal interview with the high school guidance counselor to assess their interest in and commitment to the program. Students must also have satisfactory recommendations from previous teachers, counselors, and administrators, be able to read at grade level, and display evidence of general scholastic ability and motivation for work (usually a C average). Standardized test scores are also taken into consideration.

The Sunset magnet receives little support or attention from the district administration, whose attitude can best be characterized as indifference.

The program is the creation of the principal and a guidance counselor, and it replaced a long-standing accelerated honors program for advanced students at its host high school. The Sunset program is intended to offer average students an opportunity to develop a "spirit of achievement" to help them move on to college. Its main educational treatment is to isolate these "average" students into a discrete group in hope of creating a feeling of elitism, which in turn will inspire the students to better performance.

The Sunset program teachers do not share this vision. They formerly taught in the accelerated program, and expected that their new magnet students would be of the same caliber academically as their advanced pupils were. The magnet students are deliberately average, and the teachers resent this shift and feel cheated and frustrated. They were not consulted about the design, goals, or establishment of the Sunset magnet.

The principal does not have the confidence and support of the central administration. Further, he is far more of an adminstrator than a leader, and characteristically remains aloof, even from the operation of the magnet program that he himself created.

C. Tratel School in Foundry City Suffers from Poor Principal-Teacher Cooperation and Lack of Program Leadership

Tratel School in Foundry City is in its sixth year as a magnet. It serves 997 students in grades 5-12. Tratel bills itself as "a public, college preparatory institute" for students "who thrive in a structured situation and who have had experience in a traditional setting." It offers Foundry City's standard curriculum, modified to eliminate most electives and increase student time on academic subjects. It also emphasizes discipline. Tratel has the fourth lowest QED score of our sample. However, Tratel students do test substantially above the district average in reading and math.

Tratel is somewhat selective. In keeping with district policy for virtually all of Foundry City's magnets, admission is by first-come/first-served or lottery if the number of applicants exceeds the number of seats. However, Tratel's principal is striving to become an "exam school," and for some time has been petitioning the administration to allow entrance criteria. The principal personally interviews and "counsels with" all applicants as an "informal" method of discouraging low achievers. He also personally visits feeder schools that, in his estimation, "produce good students" and does selective recruiting. Tratel also remands students who fail to maintain academic and behavioral standards.

Tratel has received substantial support from the district administration, as have all of Foundry City's magnets. The administration is deeply committed to extensive use of magnets as a means of system-wide educational revitalization, and has thrown the full weight of the district's very scarce resources (as well as substantial federal funds) behind them. However, Tratel has not received any more support or special treatment than any other magnet.

Tratel has a high degree of definiteness. However, the teachers do not agree with the principal's vision (or version) of the school. (In fact, there is a strong sense among the faculty of divergence from the principal: as one teacher expressed it, "there's us and then there's him.") The teachers see the school as simply a good comprehensive high school, serving nice, well-behaved students who are eager to learn but not of exceptional ability. For the teachers, the most positive--and most "definite"--feature of Tratel is its freedom from discipline problems. They perceive many of the regular Foundry City high schools as very unsafe, chaotic, "zoos," and are delighted to be in an orderly environment. One summed it up: "I can teach here."

Tratel's main weakness is its principal. He is hard-working and deeply dedicated to the school, and is respected for this. However, he is extraordinarily preoccupied with orderliness, and would like to impose very stringent conduct and dress codes for both teachers and students. (Teachers have flatly rejected the dress codes and enforce student discipline in keeping with their own individual standards.) Tratel's principal does not involve himself in curriculum or programmatic issues, leaving these to the teachers instead. However, several teachers reported that his penchant for orderliness carries over into scheduling, and frequently interferes with curriculum and instruction (e.g., in the ways science labs are scheduled and students are moved back and forth from assemblies). In essence, the teachers accommodate to the principal by keeping their classrooms neat and orderly and accepting his scheduling. Otherwise, they operate very independently.

D. Synthesis

These three schools with low QED scores also illustrate the strength of the relationship among definiteness, principal quality, special treatment, and educational quality. Two have received little or no special treatment from their district administrators. Of this set, two have very weak or mediocre principals at best, and a third has a principal who is drawn off by other concerns. In addition, two have low levels of definiteness, and the third is so fragmented and inchoate it is almost moribund.

Tratel has received more special treatment from its district than the other three, and has a strong identity. However, these two factors are not sufficient to overcome the weaknesses of its principal, or to heal the split between the principal and the teachers.

APPENDIX IV
DESEGREGATION

Contents

1. List of System Variables
2. Exhibit IV.1: Descriptive Summary of System Variables
3. Exhibit IV.2: Correlation Matrix, System Variables
4. Exhibit IV.3: Multiple Regression Results
5. Exhibit IV.4: Descriptive Summary of School Variables
6. Exhibit IV.5: Correlation Matrix, School Variables
7. Exhibit IV.6: Multiple Regression Results
8. Final Notes on Method of Analysis
9. Note on the Quality Integration or QI Scale

List of System Variables

Demographic Indicators

4. Total Student Enrollment in District (in 000's) School Year 1982-83.

5. Total Population of Metropolitan Area (in 000's) Containing School District, 1980.

6. Percent White in Total Metro Area Population, 1980.

7. Total Population in City (in 000's) at Core of School District, 1980.

8. Percent White in Total City Population, 1980.

9. Metro Area Population Change: (1980 - 1970) ÷ 1970. Constant of +8 added.

10. City Population Change: (1980 - 1970) ÷ 1970. Constant of +23 added.

11. District Percent White Enrolled, 1982-1983.

12. District Percent Black Enrolled, 1982-1983.

13. District Percent White Enrolled Change: (1983 - 1979) ÷ 1979. Constant of +24 added.

14. District Percent Other Minority Enrolled, 1982-1983.

15. Change in City Percent Black: (1980 - 1970) ÷ 1970.

16. Change in District Total Enrollment: (1983 - 1979) ÷ 1979. Constant of +19 added.

17. Did District Receive an ESAA Magnet Grant? Yes = 1, No = 0.

18. Percent of District Students Enrolled in Magnets, 1982-83.

19. Number of Magnet Schools in District, 1982-83.

20. Number of Magnet Programs in District, 1982-83.

21. Variables (19) + (20).

List of System Variables

(continued)

22. Estimated Role of Magnets in Desegregation Operations of District: From 100% = Total Singular Role, to 0% = No Role.

24. Magnet Implementation Effort: From 100% = Full Scale Effort to 0% = No Effort.

25. Locations of Three Magnets: From 100% = Neutral Ethnicity/ Class, to 0% = Minority Poverty Area.

26. Level of Community Conflict: From 100% = Intense White Resistance to Desegregation, to 0% = No White Resistance.

27. Current Plan Includes Two-Way Mandatory Busing: 1 = Yes, 0 = No.

28. Desegregation Policy Effort: From 100% = Board and Administration Attempt Vigorously to Desegregate, to 0% = No Attempt.

23. Quality of District Desegregation Plan Overall: From 100% = Designed to Desegegate All Schools and Students, to 0% = No Overall Plan.

29. Magnet Schools Student Desegregation: From 100% = 3 Sites Fully Desegregated, to 0% = None of Three Sites Desegregated.

30. Magnet Schools Racially Balanced: From: 100% = 3 Sites' Student Mixes Reflect District, to 0% = None of 3 Sites Balanced.

31. Voluntariness: From: 100% = 3 Sites' Students Are There by Parent Preference, to 0% = None of Sites' Have Students There by Parent Preference. (Other eligibility criteria of all kinds reduce voluntariness.)

32. Extent of Staff Desegregation: From: 100% = 3 Sites' Staffs Desegregated, to 0% = None Desegregated.

List of System Variables

(continued)

34. District Magnet Desegregation Sum Score: Variables (29) + (31) + (32) + (33) ÷ Maximum Possible Score of 400: From 100% = Highest Desegregation, to 0% = No Desegregation.

2. Quality Integration (QI): 3 Site Scale Aggregated as District Measure Maximum Possible Score.

Exhibit IV.1

Descriptive Summary of System Variables

Variables	Mean	S.D.	Minimum	Maximum
Demographic				
4. Enrollment, 1982-83	47,900	30,800	6,000	111,000
7. City Population, 1980	316,700	228,700	30,000	876,000
8. City % White, 1980	66.9	13.8	44	92
9. Metro Population Change %	15.6	11.9	0	45
10. City Population Change %	18.5	14.8	0	49
11. % White Enrolled	44.3	15.7	21	70
12. % Black Enrolled	44.2	21.4	13	79
13. % White Enrollment Change	-11.3	17.2	-4	-24
14. % Other Minority Enrolled	11.4	13.1	0	32
Organizational				
17. ESAA Grant	0.53	0.52	0	1
18. % Enrolled Magnets	13.7	9.6	3	37
21. Number of Magnets	16.4	16.0	3	58
22. Role of Magnets	55.0	33.4	5	95
24. Implementation	69.3	20.4	30	100
25. Magnet Locations (%)	59.3	34.4	0	100
26. Community Conflict	74.0	21.9	40	100
27. Two-Way Busing	0.4	0.5	0	1
28. Policy Effort	55.7	25.8	20	100
Desegregation				
23. Quality of Desegregation	58.7	20.0	10	80
29. Magnet Students	93.3	11.1	70	100
32. Magnet Staff	75.7	23.6	35	100
31. Voluntariness	53.0	26.0	0	100
34. Desegregation Score	71.5	12.0	41	86
2. QI	64.6	8.8	49	76

Exhibit IV.2

Correlation Matrix of District Variables

		Demographic									Organizational								Desegregation						
		4	7	8	9	10	11	12	13	14	17	18	21	22	24	25	26	27	28	23	29	32	31	34	2
Demographic	4		.84		.49				.69						.56							.44	.55	.54	
	7				.44								.61				-.49					.50	.58	.58	
	8						.71	-.80		.45									.52						
	9					.64																	.75	.56	
	10									.55															
	11							-.79			.44								.43						
	12									-.68						.50			-.55						
	13																								.69
	14															-.48	-.46				.44		.45		
Organizational	17															-.54						.59			
	18												.53	.46											
	21																								
	22																-.59	-.78			.63				
	24																-.50				.52				.56
	25																		-.45	-.47					
	26																								
	27																				-.44				
Desegregation	28																			.75					
	23																								
	29																							.52	
	32																							.83	
	31																							.87	
	34																								
	2																								

Note: Pearsonian r's shown are .44 or more (r = .44; p < .05).
Numbers correspond to variables listed in Table IV.1.

Table IV.3

System Level Multiple Regression Results

A. System Magnet Desegregation (34)

Regressed on: System Enrollment (4)
System % White Change (13)
System Role of Magnets (22)

Variable	Multiple R	Beta	N = 15
4	.54	.63	
13	.60	-.35	
22	.68	.33	

B. System Quality of Integration Index (2)

Regressed on: System % White Change (13)
System % Enrolled Magnets (18)
Magnet Implementation Effort (24)

Variable	Multiple R	Beta	N = 15
13	.69	.60	
18	.69	.01	
24	.81	.43	

Exhibit IV.4

Descriptive Summary of Magnet School Variables

Variables	Mean	S.D.	Minimum	Maximum	N
Demographic					
36. Grades Served[1]	2.9	0.9	1	4	45
49. Enrollment	572.0	426.9	51	1,670	45
51. % Whites Enrolled	54.9	17.9	21	98	45
52. % Blacks Enrolled	37.2	16.2	1	79	45
53. % Other Minority Enrolled	7.8	12.1	0	59	45
54. % White Staff	75.5	15.7	31	100	45
55. % Black Staff	20.5	14.5	0	52	45
Organizational					
37. Whole or Part Magnet[2]	1.6	0.9	1	3	45
48. Selectivity	8.9	3.6	3	15	45
59. Magnet Theme[3]	4.7	2.4	1	8	45
61. Definiteness	70.6	29.9	3	100	45
63. Special Treatment	59.0	31.6	1	100	45
65. Plant, Equipment, Materials	78.0	24.7	5	100	45
67. Principal Quality	61.7	25.0	20	100	45
69. Rigor	0.5	0.5	0	1	45
71. Discrepancy	36.6	34.7	0	100	45
Outcomes					
39. QED: Quality Education	68.3	13.6	32	92	45
45. Reading Achievement	34.8	16.6	13	66	32
46. Math Achievement	33.3	17.2	0	69	32
38. QI: Quality Integration	64.7	11.9	32	87	45

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[1] Coded as elementary 1, middle 2, high 3, other 4.

[2] Coded as full time 1, full time within a school 2, part time within a school 3.

[3] For types, see Appendix I.

Exhibit IV.5

Correlation Matrix of Magnet School Variables

			Demographic							Organization									Outcome			
		Variable	36	49	51	52	53	54	55	37	48	59	61	63	65	67	69	71	39	45	46	38
Demographic	36	Grades Served													-.30							
	49	Enrollment				-.47			.27	-.49												
	51	% White Students				-.75	-.48															-.34
	52	% Black Students						-.28	.31	-.47										.29		.36
	53	% Other Minority Students							-.30	.28	-.44									-.38	-.36	
	54	% White Staff							-.84	.43												
	55	% Black Staff								-.46												
Organization	37	Whole or Part Program													.31	-.28	.31					
	48	Selectivity														.48	.30			.52	.52	
	59	Magnet Theme																	-.32			
	61	Definiteness												.49	.34	.49	.34	-.73	.43	.35	.38	.33
	63	Special Treatment													.33	.44	.27	-.40	.55	.44	.45	.48
	65	Plant Adequacy															.30	-.33				
	67	Principal																-.34	.56	.56	.54	.54
	69	Rigor																		.37	.41	
	71	Discrepancy																	-.49			-.37
Outcome	39	QED: Quality Education																		.34	.39	.62
	45	Reading Achievement																			.94	.44
	46	Math Achievement																				.43
	38	QI: Quality Integration																				

Note: (1) Pearsonian r's shown are p ≤ .05.

(2) QI scale described in Appendix IV. Other variables described in Appendix III.

Exhibit IV.6

Multiple Regression, Magnet School Integration

Magnet School Quality Integration Score (38)

Regressed on: Definiteness (61)
Principal Quality (67)
Percent Blacks Enrolled (52)

Variable	Multiple R	Beta	N = 45
61	.33	.10	
67	.54	.43	
52	.60	.26	

NOTES ON METHODS OF ANALYSIS

The chapter on magnet desegregation relies on a blend of qualitative with quantitative modes of analysis. The questions treated were distilled from a thorough review of the magnet literature, the 1981-1982 pilot study, and suggestions from advisory panelists, the Project Officer, and colleagues. They are not hypotheses in any formal sense and some are amenable to one mode and some to another mode of analysis.

The quantitative mode was limited severely by the government's decision to cut our original research design in half, eliminating the sampling of non-magnet systems and schools. Our comparisons are thus confined to differences between magnet systems and schools, although we have some data from each system on its non-magnets to aid comparisons. With a few exceptions, data collection was preplanned carefully to enable the quantification of variables. The exceptions include our ratings of qualitative field reports in the data preparation stage on such things as system quality of desegregation and implementation effort.

The special strength of the analytical blend used comes from the fact that the import of statistically identified relationships between variables can be examined in depth by recourse to the field reports and that the field reports themselves led us to try to quantify certain concepts in the course of data preparation. The weakness of the blend is a kind of corrollary to this strength: greater confidence in the "findings" than may be warranted tends to grow up from the power of movement back and forth between measures and field reports. Researchers who read this chapter will understand that the techniques of correlation and multiple regression are used here on samples of 15 and 45. They are intended more as tools for ordering multivariate analysis in this study than as coefficients that have significance for generalizing from the samples to universes of school systems and schools.

These caveats do not signify a drawing back from responsibility for our announced findings, however. The field reports were carefully prepared by trained data collectors. The teams came from two separate research organizations, providing a kind of intramural device for gauging reliability by "split-half" procedures. Moreover, our most vulnerable measures "held up" in the analysis. The QI scale, composed of separate team ratings of 12 complicated facets of in-school integration, was refined by eiminating 8 facets from the reports. It and the QED scale, developed in the same way, fit into the larger multivariate pattern of harder and softer measures in logical and expected ways. The two scales support our original aim, which was to learn whether quasi-ethnographic observations taken during brief visits could become indicative of trends and relationships. The note which follows presents the QI scale and its refinement because it has many future uses.

NOTES ON THE QUALITY INTEGRATION OR QI SCALE

1. Development and Use

The items to be rated are reproduced on the following two pages. They were developed on the basis of field experience in the pilot study and from a review of magnet school integration research. For the latter, see Lowry and Associates, *Issues and Approaches for a Survey of Magnet Schools* (1982), and *The Education of Poor and Minority Children* (M. Weinberg, 1981).

The scale was originally labelled "Magnet Multiethnic Inclusiveness" because that phrase is more concrete than integration. Each of the five subscales was intended to measure a facet of multiethnic inclusiveness or integration, in ways described operationally on the chart below. After a day of observing and interviewing in a school, each of three field researchers filled out the chart independently, prior to discussion. The team then matched ratings and reached a *team* rating by consensus on each item. This allowed a pooling of observations which compensated for behavior witnessed by one researcher and not by others. Congruence was high on most items. Where it was lowest across 45 charts, the item was deleted, as described below.

SITE: ______________________
DATE: ______________________
DATA SOURCE: ______________________
TEAM MEMBER: ______________________

____
School Name

____
Grades Served

Type of Magnet: Part ______
Whole ______

CHART 20

Magnet Multiethnic Inclusiveness

(Objective: Apart from aggregate racial composition of the student body, are all aspects of student life within the magnet school desegregated?)

A. Multiethnic Pluralism: observational ratings of levels of within-school staff and student recognition and acceptance of racial/ethnic subgroup differences as a positive educational resource

______ 1. Staff express racial bias (low rating), racial neutrality, or a positive belief in group differences as a learning resource (high rating)

______ 2. Extent of formal provision for subgroup representation and participation

______ 3. Multicultural learning inclusion in curriculum

______ 4. Visual displays (mural, awards, announcements or boards) of culturally diverse ideas or images

______ 5. Student and staff clothing and grooming styles observably diverse along racial/ethnic lines

B. Lower Transfer Rates: estimated annual frequency of student out-transfers (OT) from magnet to other schools

______ 1. OT rate higher for the magnet than for other same grade level students in the district (high OT = low rating)

______ 2. Rate at which school administration remands students to other schools

______ 3. Students transferred for their next year if they do not achieve grade promotion (high transfer = low rating)

______ 4. Staff take part in efforts to retain students

______ 5. Transfer rules racially neutral vs. tied to ratios at the sending and receiving schools

C. Subgroup Distribution: the distributive spread of racial/ethnic student subgroups across programs and course offerings

______ 1. Extent of racial/ethnic balance in programs (e.g., business ed., vocational, college prep)

______ 2. Racial/ethnic balance in courses/classes

______ 3. Departures from balance due to freedom of student choice (low = no, high = yes, all)

______ 4. Tracked or ability grouped courses (low rating = high tracking)

______ 5. Special needs or bilingual students separated (low) vs. partially mainstreamed (high)

CHART 20

(continued)

Magnet Multiethnic Inclusiveness

D. Student-Staff Congruences: rating of the observable degree of racial/ethnic match between students and staff

______ 1. Extent of staff-student match (e.g., highest would be if 40% black, 40% anglo, 20% other students, then 40-40-20 staff)

______ 2. Principal or one or more of AP's black/hispanic

______ 3. Congruence a district or a school goal

______ 4. Minority staff spread optimally across fields, grade levels

______ 5. Minority staff support/exhibit diverse cultures

E. Staff Expectations: extent to which staff express and implement attitudes of high academic standards for minority students

______ 1. Staff express racial/ethnic distinctions when they refer to their student performance expectations (low rating = distinctions)

______ 2. Staff explicitly convey high expectations to students

______ 3. News of student performance success disseminated

______ 4. Grade promotion subject to meeting a set of academic performance criteria

______ 5. Staff expect students to strive harder because they are enrolled in a magnet

2. Final Scoring Procedures

QI Scale Scores

a. Of the five subscales, two were deleted: (B) Lower Transfer Rates, and (D) Student-Staff Congruences, because of field use experience and empty or Don't Know cells.

b. Item 5 on subscale A, item 5 on subscale C, and item 5 on subscale E were deleted for similar reasons.

c. Thus, the usable scale comprised 12 items: A, items 1-4; C, items 1-4; and E, items 1-4.

d. School scale scores were computed by adding up item ratings and dividing by the number of items. The product was then divided by the hypothetical maximum possible score to get a percentage. For example, Millville's Donaldson got a sum of 92 on 12 items. The maximum possible is 120. Hence, the school score is .77.

e. District scale scores were computed by adding the three school scores and dividing by 300. Hence, Millville has a combined or summed score of (77 + 72 + 73) = (222 ÷ 300) = .74.

2. Interpretation

We believe the QI measures observable features of a school's tendency to:

- Place value on its racial/ethnic diversity.
- Include all racial/ethnic groups in its activity systems.
- Use multicultural resources in its curriculum.

- Expressly communicate the value of racial/ethnic diversity.
- Mix students fully in all programs and courses/classes.
- Avoid ability grouping and tracking.
- Eliminate racial/ethnic assumptions about academic performance expectations.
- Convey high expectations to all students.
- Disseminate news of student success.
- Promote students according to clear performance criteria.

A magnet with a high score was posited to be one which was incorporatively welcoming, generative of intergroup respect, alert to racial/ethnic differences as educational resources, focused on equal access to participation, anti-stereotypical in its academic treatment, encouraging of success, and firm yet fair in its sifting. The construct validity of the scale is supported by the pattern of QI score correlations with other dependent variables and with relevant treatment or organizational variables. The reliability of the scale is suggested by the fact that the ratings were made independently by teams from the two firms of Lowry and Abt, yet the resulting distributive array is stable (see Exhibits IV.1 and IV.4) and correlates with strictly objective arrays from documentary data. The two sets of teams were conjointly trained in use of the QI and two Lowry team members joined Abt teams on the visits to two sites.

We are especially encouraged by the QI and the QED rating scales because they both suggest that reasonably sturdy observations of complex events within schools can be made by well prepared field researchers. These cannot equal more rigorously formulated data, to be sure, but classroom interaction and ethnographic measures take many months to record and become prohibitively expensive to implement. We believe we have located a fertile middle ground between survey responses of teachers or students and costly social psychological or ethnomethodological approaches.

SITE VISIT REPORTS ON HIGHLY INTEGRATED MAGNETS ILLUSTRATE FACTORS IN SUCCESS

In the following portion of Appendix IV, we have focused on four of the 45 schools sampled whose scores on the QI were between 80 and 90, contrasted with an average of 65. And, we have examined the case data on the four schools with QI scores of less than 43. These eight constitute exceptional schools. Our aim is to illuminate the ways in which magnets succeed in the task of eliminating racial/ ethnic segregation, isolation and discrimination.

A. Arts in Old Port Has Programmatic Commitment to Multiethnic Pluralism, School Goals and High Staff Expectations

Arts School in Old Port is 23 percent white, 56 percent black, and 21 percent hispanic, within a system that is 21 percent white, 60 percent black, and 19 percent other minority (nearly all hispanic). Arts is surrounded by segregated elementary and middle schools. Among Old Port's 25 elementaries, 11 have fewer than 7 percent whites and 8 are more than 50 percent white. Among six middle schools, 3 have fewer than 3 percent whites and 3 are from 37 to 70 percent white. Arts is racially balanced, desegregated in staff as well as students, and open to all who apply. It flourishes in a K-8 facility that was well built in 1955 as what local officials call "a showcase community school."

Arts was meticulously planned. The 1980-81 year was used to plan and to promote parental and student interest. All students share in the arts courses, which include fine arts, crafts, music, dance, and theater, and those with strong interests are free to deepen their studies in these fields. All students also share in a humanities study program and take regular courses in science and mathematics.

Arts has a capacity for 1,000 students. Its enrollments began to decline in 1974. The magnet program, which operates at grades 5-8 but affects the K-4 students as well, has stabilized overall enrollments at about 630. This was a central aim in the magnet effort.

Arts achieves its exceptionally high level of integration through its intense programmatic commitment to multiethnic pluralism, its inclusion of all students in its activities, and its staff's firm expectations of student effort. There are school goals. They are achieved because the arts theme makes them readily attainable and because the arts teaching is in the hands of professionals drawn from outside the system's regular staff, yet the latter have been included in the magnet program.

This is not to suggest that arts magnets always achieve, let alone aim at, integration. The arts can be taught in ways that isolate subgroups, ignore multicultural resources, and hold low expectations for many students. Arts Magnet was planned to do the reverse, however, and its blend of professional artists, dramatists, and musicians with regular teachers is based on this plan.

The Old Port board and administration have embraced neither desegregation nor integration as system goals. They have put very little extra money into starting up Arts. But they did make one critically vital contribution by permitting Arts to be different. Old Port's superintendent spearheaded this policy drive out of a personal interest in the arts and professional enthusiasm for alternative schools. It was reliance on a strong, independent association of theater people concerned with theater as education who made the Arts program possible.

B. Green School in Clay City Excels Through its Open Education Theme, Committed Principal and Staff, and Expectations for Integration

The Green School, a K-12 school hosting 550 children and youth, began in 1971 as an invention of a superintendent with strong interests in humanistic psychology and a professional commitment to creating alternative programs. Green came into being before the federal court took up segregation in Clay City. It began with a half white, half black enrollment by board choice, and it has always striven for this balance on its faculty. The court exempted Green from its order and it has lived on as the only school of its kind in a huge, unified city-county system of over 96,000 students for a decade.

Green is highly integrated because its theme emphasizes cross-grade, cross-race, individualized pacing of learners. It began as an experiment in open education, with learning centers and modular units, but it put in self-contained, walled classrooms a few years ago, and the open education philosophy has slowly drained away. Among surviving elements, however, is a unit on black literature.

When it began, Green was designed to host gifted students--to attract and retain professional, technical, and academic families working and living in the central city and its large university. Humanistic education, with concern for individual freedom of expression and intergroup tolerance were the formative cement.

Green has grown more conventional over time. Its open campus policies have been restricted and its curriculum at the upper grades follows the state's guidelines. ESAA funding and a school-based foundation together have yielded in excess of one million dollars in support. Students today are screened for alleged symptoms of hyperactivity and learning disabilities; otherwise the school composes itself annually from a wide range of applicants, though the pool is shrinking and enrollments are down to 550 from a high of 800.

Green scores very high on our QI measure, then, because it was founded on a quest for a highly integrated learning environment and because it has been led toward this goal by a vigorous principal and a handpicked faculty for twelve years. It falls short of ideal (e.g., a 100 on the QI) because that faculty is not united in setting high performance expectations for all students--not from discrimination but from some shortfall in concern for academic striving. Some observers find this to be consistent with humanistic education; we do not. It may have to do with a decline in public resonance in the Clay City system with non-traditionalistic ideals.

C. Achievers High in Foundry City Has Strong District Support, Emphasis on Academic Standards, and Systematic Multiethnic Inclusion

Achievers High began a decade ago as a response to parental demands for a school for gifted students. Its parent leaders, principals, and faculty were in protracted conflict over whether Achievers was to be a friendly, inclusive alternative school or a "pressure cooker" for advanced college preparatory studies until 1980, when the system's magnet leader relocated the school, put in a new principal, and adopted the competitive approach. In earlier and later stages alike, however, Achievers has tried hard to become racially balanced in staff and enrollments, and this policy has never varied.

Achievers High hosts about 800 fifth to twelfth graders in a facility abandoned for school use in 1969. It sits in an impoverished, all black neighborhood and was placed here in order to demonstrate good faith to plaintiffs in the system's desegregation case. Over two million dollars were spent to restore the building, which now appears spacious and handsome.

Achievers selects its students from among those who apply who have high grades and high general test scores. The teachers expect and reward serious academic striving. All racial and ethnic subgroups are recognized, respected, and included in all courses and co-curricular affairs, yet a few staff view blacks as academically inferior and there is a slight tendency to "discourage out" black beginners, that is, fifth graders.

D. Peters High in Valley City Has Focused its Racial Integration Efforts Through Magnets and Been Led by an Exceptional Principal

Peters High enrolls 1,208 students, only 278 of whom are part of the magnet program. The students overall are 60 percent white; they are 50 percent white in the magnet program, however. The staff of this predominantly black high school is 90 percent white, while the magnet staff is 75 percent white.

Peters High is remembered in Valley City as the place where violent cross-race rioting took place less than a decade ago. Located in the middle of a cemetery, Peters High is also very old and for generations served the children of Polish and German immigrants who came to work in its factories and foundries. In 1969, Peters was 90 percent white and hosted over 1500 students.

Peters became an early attempt by the superintendent to prevent racial conflict. The two little magnet programs have succeeded in this respect. Neither the JROTC nor the Law and Public Service curricula contain studies in race, ethnicity, culture, or intergroup relations, yet both have replaced despair and daily chaos with firmly structured studies, definite emphasis on academic striving, and intergroup respect. After great effort by the principal and staff, Peters has been calmed though its non-magnet students remain racially separatistic, while the magnet programs within it have brought black and white students into exceptional social harmony. United States Army policies and procedures--the policies since 1960, that is--have played a major role in creating the new climate.

E. Synthesis

The four schools fit the pattern suggested by our quantitative analysis. All have sizable black enrollments. All have strong principals selected for their leadership ability, although only the Green principal is an extraordinary individual. All have received serious and exceptional treatment from their host systems. All four are definite programmatic entities, whether they stand alone as do Green and Achievers High, or are nested within larger schools, as are the Arts School and Peters magnet programs. None is discrepant in delivery when compared with thematic label.

Causality is implied in these vignettes: Each came up historically out of interests expressed by parents, some administrators, and some board members. Each school was wittingly designed to be at once desegregative, integrative, and educationally effective. At Peters, this effort had high urgency because of a record of interracial violence. Arts in Old Port, moreover, shows that integration can be achieved in the course of pursuing a good thematic ideal.

SITE REPORTS ILLUSTRATE HOW SOME MAGNETS FAIL TO PROVIDE QUALITY RACIAL INTEGRATION

We examined the reports in four schools with the lowest scores on the quality integration scale to see what the information could tell us about the sources of their nonintegration.

A. Tolman High Uses the Magnet as a Track for Blacks and does not Encourage Social Integration

In 1980, Tolman High was 88 percent white within a Steeltown system that was then 78 percent black. By consent decree in court, a magnet program was installed and the enrollment changed to 71 percent white.

Tolman is labeled a math-science magnet. This means that advanced placement courses not available elsewhere in Steeltown in calculus, biology, chemistry, environment, and scientific writing were installed on short notice. Counseling and tutoring services for blacks were beefed up, but otherwise the Tolman of 1980 is the magnetized Tolman of 1983.

Tolman's black students are recruited by staff on the basis of their test scores. On arrival, all but a tiny handful are placed in the lower course tracks and do not share in the new course offerings. Black students are not included among government officers, cheerleaders, the homecoming "court," or the boys' glee club. We observed strict informal racial segregation in the cafeteria and halls. Tolman is still a comprehensive senior high run for and by upper middle class whites on the suburban edge of Steeltown, only now it admits a quota of black students. The quota is full.

The principal, regarded as "tough as nails but fair" by teachers, is under 35 years of age and in his first year on the job. He had been an elementary and a middle school principal previously. He is the third principal of Tolman in the last four years.

B. Sunset High Developed a Magnet to Hold White Students, but Made Little Program Change or Effort to Recruit Students

This is a college preparatory magnet program placed in a longstanding comprehensive senior high school in Centerville. Magnet students, 199 of them, 21 percent black in a system that is 32 percent black, are sequestered throughout their daily coursework, and they are required to take and pass more courses in harder subjects.

Before the magnet was installed, Sunset's faculty cohered around an intensive, highly selective advanced placement program. The same teachers are now disappointed and frustrated because the change has left them with their program but with average students, they say.

The Sunset magnet was designed to re-attract and hold white students. The program, devised by the principal and a guidance counselor without teacher endorsement, "is no more or less than a scheduling innovation based on existing courses and methods." It opens a previously elite track to other students. Tutorial help is available, but only on a paid basis! Teachers think the program will fade away as federal funds disappear overall.

Sunset's principal, a black protestant minister with a church on the side, has been part of Centerville's schools for 25 years. He lacks the backing of the superintendent and some board members and was denied the principalship of a better high school, where he candidated recently. He takes a "hands-off approach in curricular and general leadership" and stays mostly in his office.

C. Larriat Junior High was Designed, and Operates, to Serve Upwardly Mobile Whites in an Honors Track and has no Desegregation Objectives

Larriat Junior High School in Starville enrolls 788 students, 425 of whom are in the magnet program. Starville's overall enrollment is 13 percent black and 31 percent hispanic. Larriat is 77 percent white, contrasted with 56 percent white for the system. Within the magnet, the enrollment is 8 percent white, 4 percent black, and 8 percent hispanic.

The magnet was introduced in September 1980, after the superintendent directed its creation. It was to be put in another facility, but that was condemned as fire unsafe. There was no faculty or community participation in the decision or the two months of planning. Larriat's principal, a 27 year veteran of Starville schools and a principal for 22 years, had no role or say. A self-defined administrator rather than an instructional leader, he believes firmly in a "top-down" chain of command. "I had a job to do," he said about installing the magnet. "I coordinate. I make the schedule. I stay away from curriculum." He is popular with his faculty.

Larriat is in an upper middle class white neighborhood. Its magnet was designed to enable upwardly mobile, college oriented parents to get their sons and daughters into an honors preparatory track, particularly parents who live outside Larriat's regular attendance zone. Larriat is nowhere discussed as a part of racial/ethnic desegregation. In Starville, a school is defined as segregated if it is over 66 percent black and hispanic. Larriat's faculty of 46 includes 2 black and 2 hispanic teachers, none of whom teach in the magnet courses. The magnet consists of a schedule for tracking college-bound students and of a few science laboratory and piano studio offerings not available previously.

D. Jefferson Elementary is a Fundamental School that is Formally Racially Balanced, but Integration is not Part of the Program Design

Some 524 kindergarten to sixth graders attend Jefferson Fundamental School in Paradise. Their racial/ethnic mix is 22 percent white, 42 percent black, and 36 percent hispanic and Asian in a system that is 26 percent white, 43 percent black, and 31 percent other minority. Jefferson's faculty is 58 percent white and 37 percent black.

Jefferson's plant is located in the oldest black neighborhood in Paradise. A large, expensively built structure from the 1920s, it was closed for use for a few years and then reopened for its magnet purpose.

Jefferson exists to fulfill the vision of fundamental education: "A fundamental school is simply a school where basics of education are stressed with little or no experimentation; where discipline reigns and patriotism flourishes." The vision is carried out to the letter at Jefferson, where the principal is on the verge of retiring after a lifetime of presiding over schools that ran on these principles. He is an intense patriot, a moral majoritarian, a stern disciplinarian, and his students sit still, shut up, do drill book exercises by the bulk, and register achievement test scores a few points above the district means.

This school was intended as a symbolic rallying point for parents opposed to court-ordered desegregation, yet it is explicitly balanced by the system. Race relations are not discussed. The social agenda is character education based on Christian value explication. The agenda and the rigidly structured pedagogy appeal to subgroups within each of Paradise's several ethnic subcommunities. Intergroup integration is not part of the design.

E. Synthesis

These four schools have low QI scores (from 32 to 42) because biracial or multiethnic integration is not part of their mission or daily operations. Three of the four are white-dominated in students, staff, and program participation and the fourth, Jefferson, stresses entirely different concerns.

Two of the four principals are administrative bureaucrats who have no ego investment in their magnets; one is a stern disciplinarian with no concerns for multicultural aspects of teaching or learning; and the fourth just arrived on the job after high turnover of predecessors. Only one (Jefferson Fundamental) had a real share in designing the magnet.

Three of the four are located in totally white neighborhoods. Only Jefferson shows curricular definiteness and high congruence between its label and what it delivers.

APPENDIX V
COST DATA COLLECTION

Contents

1. Introduction and Description of Data Collection Instruments
2. Instructions to Site Personnel
3. Instructions for Completing Exhibit A-1
4. Exhibit A-1: District Operating Expenditures
5. Instructions for Completing Exhibit A-2
6. Exhibit A-2: District Personnel Inventory
7. Instructions for Completing Exhibit B-1
8. Exhibit B-1: Individual Magnet School Operating Expenditures
9. Instructions for Completing Exhibit B-2
10. Exhibit B-2: Individual Magnet School Personnel Inventory

APPENDIX V
COST DATA COLLECTION

Introduction

This appendix contains an edited version of the data collection forms and instructions used to collect cost information from participating school districts. Primary contact was made in each case with the district's chief financial officer. After the site visit team oriented the financial officer and the magnet schools coordinator to the general scope and content of the cost study, an instrument package was sent from Abt Associates Inc. in Cambridge, Massachusetts to the district. The study's senior financial analyst phoned each respondent one week later to answer any questions and to begin the process of completing the forms. Additional contacts were often necessary (initiated both by the financial analyst and by the districts) as the districts endeavored to supply the required information.

Instrument Package

The instrument package was addressed to the chief financial officer. Although three years worth of data was requested, some districts were unable to comply and only two years were eventually analyzed across districts. Although the text mentions three forms in each set, only one has been reproduced here for illustration.

APPENDIX
VI

MAGNET SCHOOLS AND URBAN DISTRICTS AND COMMUNITIES

Instructions to Site Personnel

Purpose of the Cost Study

The cost study of magnet schools has been designed to address several research issues, including:

- magnet school versus district average total cost per pupil and salary cost per classroom teacher;
- magnet school versus non-magnet school personnel/non-personnel costs, including comparisons of specific objects of expenditure;
- costs of different types of magnet schools, both in total and by specific object of expenditure; and
- changes in magnet and non-magnet school costs over time, both actual and adjusted for inflation.

Data Collection Forms

The enclosed forms and instructions have been designed to collect information about your operating expenditures and personnel for the academic years 1979-80, 1980-81, and 1981-82. Exhibit A-1 covers district operating expenditures, categorized by object of expenditure and cost center. Exhibit A-2 is a district personnel inventory.

Exhibits B-1 and B-2 pertain to individual magnet schools in your district included in our study. Exhibit B-1 covers school operating expenditures whereas Exhibit B-2 inventories its personnel. A separate set of forms has been prepared for each magnet school.

Exhibit A-1: DISTRICT OPERATING EXPENDITURES

This set of forms asks for total operating expenditures incurred by the district and all of its schools during each of three academic years: 1981-82, 1980-81, and 1979-80. A separate form has been prepared for each academic year.

To complete each form, the following steps are suggested: (1) total costs by object of expenditure, (2) allocate direct costs to cost centers, (3) allocate direct costs within partial magnets, and (4) estimate indirect costs.

Step 1: Total Costs by Object of Expenditure. Actual expenditures for the district should be totaled and recorded for the following objects:

OBJECTS	Includes items such as:
1000 SALARIES	
Classroom Teachers	Regular salaries Temporary salaries Overtime
Other Salaries	
2000 EMPLOYEE BENEFITS	Retirement contributions Paid insurance Tuition aid/inservice Workmen's compensation Sabbatical leave Social security
3000 PURCHASED SERVICES	
Pupil Transportation	
Other Purchased Services	Professional and technical services Property services (utilities, maintenance, etc.) Travel and transportation Communications (telephone, postage, etc.) Advertising Tuition (special education, vocational education, etc.) Data processing services Printing and binding
4000 SUPPLIES AND MATERIALS	Supplies (office, classroom, vehicle, maintenance) Textbooks Library books and periodicals
5000 CAPITAL OUTLAY	Building repair and renovation Equipment Furnishings
6000 OTHER OBJECTS	Memberships Insurance and judgments Extra-curricular expenses Cafeteria subsidy Other

Use actual expenditures whenever possible. Budgets should be used only as a last resort since they represent planned rather than actual expenditures.

Do not attempt to distinguish between expenditures paid with federal funds and expenditures paid with state or local funds. We are interested in the uses of those funds rather than in their sources. Also, do not include expenditures for pre-school programs or adult education. We are interested in K-12 only.

Step 2: Allocate Direct Costs to Cost Centers. Allocate those expenditures that can be easily, obviously, and conveniently attributed to individual cost centers relevant to your district:

- Magnet Elementary Schools
- Magnet Intermediate Schools (Middle Schools/Junior High Schools)
- Magnet Secondary Schools
- Non-Magnet Elementary Schools
- Non-Magnet Intermediate Schools
- Non-Magnet Secondary Schools
- District Level (Central District Offices only)

For example, allocate classroom teacher salaries among elementary schools, intermediate schools, and secondary schools based on actual assignment. Allocate the superintendent's salary to the district level. Allocate utilities costs to the appropriate school building or district level, if they are separately metered. Utilities costs that are not separately metered are an example of the indirect costs estimated in Step 4.

For Exhibits A-1 and A-2, we are interested in all the magnet schools and programs in your district, not just those studied during our recent visit.

Step 3: Allocate Direct Costs within Partial Magnets. A special problem in allocating direct costs between magnet and non-magnet schools arises when one or more schools in the district is a partial magnet, i.e., both magnet and regular school programs are included in the same building. For each partial magnet in your district, it is suggested that you allocate costs for each object of expenditure by:

- first, allocating directly whichever expenditures are easily and conveniently attributable either to the magnet program or to the regular program;
- second, identifying and pooling whichever expenditures are shared by the magnet and regular school programs and cannot be easily split between them, e.g., salary of the building principal;

- third, dividing these pooled expenditures between the magnet and regular school programs based on the assignment of classroom teachers. For example, if the classroom teachers in the school deliver 300 instructional hours per day (50 teachers @ 6 hours per day), of which 120 hours or 40% are spent on the magnet program (30 teachers @ 4 hours per day), then 40% of the pooled expenditures for that building are allocated to the magnet program and 60% to the regular or non-magnet program;
- fourth, adding the expenditures conveniently attributable to the magnet program in the building to the gram's share of the pooled expenditures to determine total magnet program costs for salaries, supplies and materials, and other objects of expenditure. Include these magnet costs with other magnet school costs recorded on Exhibit A-1; and
- fifth, adding the expenditures conveniently attributable to the regular school program in the building to the program's share of the pooled expenditures to determine total regular program costs by object of expenditure. Include these regular program costs with other non-magnet school costs recorded on Exhibit A-1.

Step 4: Estimate Indirect Costs. Estimate all expenditures that are of such nature that they cannot be readily or accurately identified with a specific cost center. For example, a district may incur indirect costs if it:

- does not meter utilities by individual building;
- has a teacher training center used by all teachers and specialists; or
- uses custodial staff to clean corridors in a school building which is used jointly by district and school personnel.

Enter these expenditures as indirect costs for each object of expenditure in Exhibit A-1. Total costs (Step 1) less direct costs (Steps 2 and 3) should equal indirect costs (Step 4).

EXHIBIT A-1

OPERATING EXPENDITURES

Academic Year: ____________

		STEP ①	STEPS ② & ③							STEP ④
OBJECTS OF EXPENDITURE	COST CENTERS	TOTAL COSTS	DIRECT COSTS							INDIRECT COSTS
			MAGNET SCHOOLS			NON-MAGNET SCHOOLS			DISTRICT LEVEL	
			Elemen. Schools	Intermed. Schools	Secondary Schools	Elemen. Schools	Intermed. Schools	Secondary Schools		
1000 SALARIES	Classroom Teachers	$	$	$	$	$	$	$	///////////////	$
	Other Salaries									
2000 EMPLOYEE BENEFITS										
3000 PURCHASED SERVICES	Pupil Transpor.									
	Other Purchased Services									
4000 SUPPLIES AND MATERIALS										
5000 CAPITAL OUTLAY										
6000 OTHER OBJECTS										
TOTALS		$	$	$	$	$	$	$	$	$

Exhibit A-2: DISTRICT PERSONNEL INVENTORY

This set of forms asks for the total numbers of pupils and employees in the entire district for three academic years: 1981-82, 1980-81, and 1979-80. A separate form has been prepared for each academic year.

To complete each form, the following steps are suggested: (1) total personnel by group, (2) allocate personnel to cost centers, (3) allocate personnel to cost centers within partial magnets, and (4) record number of buildings within each cost center.

Step 1: Total Personnel by Group. Exhibit A-2 categorizes personnel into five groups:

1. Pupils
2. Administrators: includes the superintendent, associate/assistant superintendents, business manager, curriculum director, special education director, principals, assistant principals, and other supervisory or management personnel employed by the district. Does not include professional or clerical staff since they are included under "other."
3. Classroom teachers
4. Specialists: includes staff other than classroom teachers, involved in delivering services to pupils, e.g., reading specialists, art/music specialists, school psychologists, school nurses, librarians, curriculum specialists, and social workers.
5. Other: any person not included in one of the above classifications, e.g., clerical staff, accountants, statisticians, public/community relations liaisons, legal counsel, bookkeepers, crafts and trades such as carpenters and electricians, custodians, drivers, guards, etc.

Record only full-time equivalent (FTE) figures in each group for the entire district. Do no use head count figures. An example of the difference: a school with 40 full-time teachers and 10 half-time teachers would have an FTE total of 45 teachers and a head count of 50. Use FTE figures and record the first decimal place, e.g., 12.5.

Do not include pupils or employees assigned to pre-school programs or adult education. We are interested in K-12 only.

Step 2: Allocate Personnel to Cost Centers. Allocate personnel in each group to the appropriate cost centers based on actual assignment. Assign specialists to school buildings where possible. Use FTE figures and record to the first decimal place.

Step 3: Allocate Personnel to Cost Centers within Partial Magnets. For partial magnet schools, apportion pupils, classroom teachers, and other instructional staff between the magnet and regular school programs based on actual assignment and instructional hours, e.g., if the pupils spend 3,000 hours per day in the building (500 pupils @ 6 hours per day), of which 600 hours or 20% are spent in a magnet program (300 pupils @ 2 hours per day), then 20% of the FTE pupils are allocated to the magnet program and 80% to the regular or non-magnet program. Apportion administrators and clerical staff between the programs based on the assignment of classroom teachers, e.g., a school with 40% of its classroom teacher instructional hours assigned to the magnet program would have .4 of its principal included in the magnet school personnel inventory and .6 of its principal included in the non-magnet inventory.

Step 4: Record Number of Buildings. Record number of buildings within each cost center, i.e., magnet elementary schools, magnet intermediate schools, etc. Partial magnet buildings should be apportioned between the magnet and non-magnet cost centers based on classroom teacher instructional hours, e.g., an elementary school with 40% of its instructional hours spent on the magnet program would be apportioned .4 building to the magnet elementary school cost center and .6 building to the non-magnet elementary school cost center.

EXHIBIT A-2

PERSONNEL

Academic Year: ___________

STEP①   STEPS②&③

COST CENTERS PERSONNEL GROUP	TOTAL	MAGNET SCHOOLS			NON-MAGNET SCHOOLS			DISTRICT LEVEL
		Elemen. Schools	Intermed. Schools	Secondary Schools	Elemen. Schools	Intermed. Schools	Secondary Schools	
Pupils								//////////////
Classroom Teachers								//////////////
Administrators								
Specialists								
Others								
Number of Buildings								//////////////

STEP④

Exhibit B-1: INDIVIDUAL MAGNET SCHOOL OPERATING EXPENDITURES

This set of forms asks for operating expenditures incurred by the individual magnet schools in your district that are participating in our survey of magnet schools. A separate form has been prepared for each school.

In completing the form, please keep these points in mind:

- Actual expenditures rather than budgeted amounts should be recorded for the same objects as on Exhibit A-1 and for the same academic years: 1981-82, 1980-81, 1979-80.
- Record as many expenditures as possible that can be directly and conveniently attributed to the individual magnet school, e.g., classroom teacher salaries. Omit expenditures that can only be indirectly attributed to the magnet school, e.g., pupil transportation.
- Do not attempt to separate federally funded expenditures from state or locally funded. Do not include expenditures for pre-school programs or adult education.
- For partial magnets, record on the table only those expenditures attributed to the magnet school program. Omit the expenditures of the regular program. Use the same allocation principles to apportion expenditures between the magnet and regular school program that you used for Exhibit A-1.

EXHIBIT B-1

INDIVIDUAL MAGNET SCHOOL OPERATING EXPENDITURES

School: ____________________

OBJECT OF EXPENDITURE			ACADEMIC YEAR		
			1981-82	1980-81	1979-80
1000	SALARIES	Classroom Teachers			
		Other			
2000	EMPLOYEE BENEFITS				
3000	PURCHASED SERVICES	Pupil Transportation			
		Other			
4000	SUPPLIES AND MATERIALS				
5000	CAPITAL OUTLAY				
6000	OTHER OBJECTS				
		TOTAL			

Exhibit B-2: INDIVIDUAL MAGNET SCHOOL PERSONNEL INVENTORY

This table asks for the total numbers of persons assigned to individual magnet schools within the same five personnel groups as on Exhibit B-2: pupils, administrators (e.g., principal, assistant principals), classroom teachers, specialists, and other.

One copy of Exhibit B-2 has been provided for each magnet school participating in this study.

In completing Exhibit B-2, please keep these points in mind:

- Personnel data should be recorded for three academic years.
- Record only full-time equivalents, not head counts.
- For partial magnets, record only those personnel assigned or allocated to the magnet program based on the same allocation principles used for Exhibit A-2. Omit regular program pupils and employees. Omit pupils and employees assigned to pre-school programs or adult education.

EXHIBIT VI-1

FACTORS IN MAGNET PROGRAM INITIATION

District	Problems/Issues	Magnet Program Objectives	District Strategy	Decision-makers
Millville	Racial balance in inner-city schools Discipline, academic quality	Voluntary desegregation Improve education quality	Total magnets High quality in monority neighborhoods Open access	Superintendent School Board Federal Judge Staff
Steeltown	Racial isolation-busing threat White flight Declining education quality	Increase racial balance in predominantly white high school and hold whites in increasing black schools	Academic advanced, part-magnets in target schools Recruit high qbility students of opposite race	School Board Superintendent
Foundry City	Threat of court-ordered desegregation	Voluntary options plan for desegregation Involve parents and communities in decisions on desegregation	Broad program of total or or part-magnets based on school strengths and community proposals, open access Central Direction	Superintendent Board Judge Community/parent leaders
Centerville	Declining white enrollment Racial tension Perception of low quality	Offer magnet options to hold middle-class whites Educational options	Advanced and alternative curricula as part-magnets in schools selected by district	Some board members Magnet director Parents (one school)
Clay City	Merged city/county systems Mandatory busing	Alternatives to regular education and assigned schools	No central planned program Respond to interest groups for alternatives, limit number	School Board Parent groups
Starville	Interest in advanced academic programs Racial isolation in de jure segregated schools	Offer advanced programs in two predominantly white schools and increase enrollment Attract whites to all-black high school	Part-school magnets in target schools, recruit high ability students Merge vocational programs in black high school	District administration School staff (one school) Middle-class parents

FACTORS IN MAGNET PROGRAM INITIATION
(Continued)

EXHIBIT VI-1
(2)

	Problems/Issues	Magnet Program Ocjectives	District Strategy	Decision-makers
Old Port	Loss of students after eighth grade Interest in alternatives to comprehensive high school	Retain/attract high school students Offer options in school organization and theme on voluntary basis Better school utilization	Expand on existing alternative high schools Involve school staff in development Attract theme-related comm. non-profit organizations	Superintendent School board Dist. and school staff Comm. non-profit organizations
Valley City	Pressure for/fear of desegregation Declining enrollment/white flight	Voluntary alternative to mandatory desegregation plan (original) Improve education quality/hold students (later)	District-wide magnet program Central selection of themes and locations Part-school magnets to increase mix in school	Some board members Magnet advisory committee from community District staff
Sister City	Declining white enrollment Maintaining schools racial/ethnic balance	Increase desegregation in schools in areas with high minority population Balance school enrollments	Allow community committees to decide on magnets vs. pairs/clusters Develop a few part-school magnets in critical areas/schools High quality programs, open access	Community/parents School staff Board members
Sunshine City	Racially isolated schools (23) Avoid mandatory desegregation Quality of education in isolated schools	Voluntary desegregation through magnets and other programs Improve curriculum in minority isolated schools Expand theme curricula to all schools	Total and part-magnets in 23 minority isolated schools Some advanced programs and unique themes to attract whites Central staff design and development	Citizens Adv. Committee on Integration Federal court School board District staff School staff
Evergreen	Method of reducing racial isolation Fear of white flight Declining enrollment	District-wide voluntary desegregation plan (original) Provide voluntary options to assigned school Hold white students in district	Part-school magnets to improve racial/ethnic mix in existing schools Central direction of themes and transfers Expand option transfer to more schools if positive desegregation effect	School board Superintendent District staff Community Advisory Committee

FACTORS IN MAGNET PROGRAM INITIATION
(Continued)

EXHIBIT VI-1
(3)

	Problems/Issues	Magnet Program Objectives	District Strategy	Decision-makers
Rivertown	Threat of mandatory desegregation How to develop voluntary desegregation plan with quality integrated education	Voluntary desegregation of district Offer quality alternative programs Attract white and minority students	Central planning, direction staffing, and location decisions Comm. involvement in themes, gaining support Themes to attract varied interests and ability levels	School board Superintendent Comm. Task Force Local school Advisory Councils District staff Business, colleges, advisory organizations
Paradise	Opposition to mandated desegregation Declining enrollment	Alternative school to offer different curriculum (pre-desegregation) Fundamental magnets to avoid desegregation assigned schools	Develop fundamental schools as conservative "alternative" Magnets not part of district desegregation or instructional plan — appeal to special interests	Board members Parent groups
Regional City	Desegregation plan to meet court requirements Perception of poor quality schools	Attract white and black mid-class students Voluntary desegregation of magnets, then other schools Build public confidence in quality	Few academic magnets to attract high-ability students Central design, development, publicity Attract high quality school staff	Superintendent District staff School board Community, parents Principals
Midtown	Mandatory desegregation plan Declining white enrollment Perception of poor quality education	Options to assigned schools Hold/attract whites Improve academic quality	Part-magnets in quality, desegregated schools College prep, science, arts themes for average or better students Expand to more schools based on demand .	School board members Superintendent and district staff (later) Middle-class parents Business/civic leaders

EXHIBIT VI-2

LEADERSHIP ROLES IN MAGNET SCHOOL IMPLEMENTATION*

Source of Leadership

DISTRICT	SCHOOL BOARD	SUPERINTENDENT	CENTRAL STAFF	PRINCIPAL	TEACHERS	COMMUNITY
Millville	2-2-2	3-3-3	5-5-5	2-2-2	1-1-1	1-1-1
Steeltown	0-0-0	0-0-0	4-2-4	3-5-0	1-2-1	0-0-0
Foundry City	0-0-0	0-0-0	5-4-2	2-2-3	0-3-1	1-2-1
Centerville	3-3-3	1-1-1	5-4-4	5-4-2	1-2-1	2-2-2
Clay City	1-0-4	0-0-0	0-4-0	1-4-2	0-0-0	2-1-0
Starville	1-1-0	0-1-3	4-5-5	4-0-1	1-0-1	1-0-0
Midtown	2-1-2	0-0-1	4-2-4	2-4-2	1-1-1	0-0-0
Old Port	2-2-0	1-1-0	5-4-4	0-5-1	2-4-0	3-2-5
Sunshine City	1-1-1	1-1-1	5-5-5	4-3-1	2-2-2	3-2-4
Valley City	1-1-1	0-0-0	3-3-3	3-0-2	3-2-1	2-2-2
Evergreen	1-1-1	1-1-1	5-5-5	1-0-2	3-3-1	0-1-2
Sister City	0-2-1	1-1-1	0-1-1	4-0-4	4-3-1	2-3-3
Rivertown	3-1-0	1-0-1	2-4-5	1-3-3	1-3-0	1-3-2
Regional City	0-0-0	1-0-0	2-2-2	4-3-3	2-1-1	0-0-0
Paradise	0-2-2	2-0-0	0-3-3	3-3-3	2-1-1	2-1-1

*Five Possible Roles Surveyed: Obtain Funds, Design/Plan, Theme Selection, Staff Selection, Curriculum Development. Numbers correspond to three schools surveyed per district.

EXHIBIT VI-3

MAGNET SCHOOLS LEVERAGE ON DISTRICT PROBLEMS

DISTRICT	Desegregation	Education Quality	Program Expansion	Support for District	Other Effects
Millville	Publicity on voluntary desegregation success in inner-city	High publicity on quality of education improvements and equal access	Discouraged	Improved image of district education	Interest in more magnets among parents New use for old school buildings
Steeltown	Meets federal court requirements and avoids busing	Not leveraged	Discouraged	Not affected	Resentment of blacks due to locations and creaming of better black students and teachers
Foundry City	Voluntary desegregation success with no conflict	Public support that quality of education improved	Not expanded	Support for passing district budget Improved attitudes toward public education	Plans to upgrade quality of education in non-magnets Involvement of parents improved
Centerville	No leverage	Magnets known as advanced, selective programs to hold whites	Discouraged	None apparent	Resentment of black parents to programs favoring middle-class whites
Clay City	No leverage	High parent interest, but no leverage by district	Discouraged	No leverage	High magnet parent interest and long waiting lists at traditional school

EXHIBIT VI-3
(2)

MAGNET SCHOOLS LEVERAGE ON DISTRICT PROBLEMS

DISTRICT	Desegregation	Education Quality	Program Expansion	Support for District	Other Effects
Starville	Progress toward voluntary desegregation in magnets	Evidence of improved quality through academic magnet	Addition to middle school magnet in "academic track"	Improved attitudes of racially-mixed schools	Improved morale of teachers in magnet locations
Midtown	Evidence to court of desegregation progress Role in consent decree Build interest of whites in public schools	Magnets used to show quality education is available in district High publicity on quality programs	Magnets expanded from 5 schools to 21 schools, but now will be restrained	School tax increase passed and attributed to positive publicity on quality improvements	Black community wants more magnets and quality improvements Some separation of schools into magnet and non-magnet with resentments attached
Old Port	Not a main objective	Alternatives are a positive resource for district	Plan to expand current magnets to regional districts	Highly positive view of magnets	Develop effective relations with community education organizations
Valley City	No leverage	Lack of publicity and leverage of several quality magnets	Not expanded	Support from business/government leadership for magnets Low public knowledge of program	Charges of elitism and less opportunity for blacks Developed relations with local university
Sister City	Leverage on racial composition problem due to enrollment shifts	Magnets not highly leveraged -- "all schools have quality"	Addition of two small elementary magnets and a junior high (two years ago)	Increased support from magnet parents	Minorities interest in more magnet transfer opportunities for minority students Attraction of parents to live in magnet student boundaries

EXHIBIT VI-3
(3)

MAGNET SCHOOLS LEVERAGE ON DISTRICT PROBLEMS

DISTRICT	Desegregation	Education Quality	Program Expansion	Support for District	Other Effects
Sunshine City	Resolved court and plaintiff demands by meeting desegregation goals for magnets	Magnets viewed widely as quality programs and compete with "better schools" Spin-offs for all students in some schools	Restricted by court to former racially isolated schools	Support maintained by magnets role in avoiding system-wide desegregation assignment	Resentment from minority parents in magnet neighborhoods who want to enroll students Interest in more bilingual programs and minority access
Evergreen	Leveraged magnet transfer option to avoid desegregation opposition systemwide	Magnet program built on concept of quality choices for all students in district	Expanded to half the schools in district, now reduced with less federal funds	Magnets have helped maintain support from middle class professionals	Minority concern with separation of magnet students and equal access High expectations from federal funding now frustrated Help to balance enrollments across schools as totals decline
Rivertown	Maintained voluntary desegregation plan for 10 years	Magnets viewed as answer to improved quality by community Neighborhood schools improve to compete	Numbers have expanded to meet demand and interests	District gained strong business and political support with magnets	Teachers highly interested Some neighborhood schools racially unbalanced and under enrolled District controls recruiting centrally to hold down "skimming"

EXHIBIT VI-3
(4)

MAGNET SCHOOLS LEVERAGE ON DISTRICT PROBLEMS

DISTRICT	Desegregation	Education Quality	Program Expansion	Support for District	Other Effects
Paradise	No leverage on district desegregation	Magnets viewed as exceptions to district education, not quality	Low Interest	Not affected	District wants to end magnets with consolidation of schools and resources
Regional City	Plan to hold whites by improving quality education perception	Magnets major step to restoring quality and prof./middle class confidence	No encouragement	District has community teachers support with magnets as a tool	Effort to improve other schools through pressure of magnet waiting lists

APPENDIX

VII

PROGRAM SUMMARIES OF QUALITY MAGNET SCHOOLS

LANIER HIGH - VALLEY CITY

Theme

The magnet program theme at Lanier High School is computer science. It is a part-school program designed to give students in grades nine through twelve a computer background for college and career preparation.

Development

The magnet program at Lanier is four years old, and was implemented as part of the district plan for voluntary desegregation (which was not sufficiently successful to forestall a later mandatory plan). The creation and design of the magnet programs was done by an advisory committee consisting of representatives of the business, public and private community organizations, teachers, principals, administrative staff, parents, and clergy. It was this advisory committee which chose the theme for the Lanier program.

Several indigenous factors influenced the selection of a computer magnet. The developing services sector of the Valley City economy along with the growing needs of local corporations for computer-trained personnel were important ingredients. A third element was the presence of educational institutions with strong computer departments. A local university made substantial contributions to the curriculum, design, and implementation of the Lanier program.

Lanier High School has consistently maintained a racially mixed student body of 60% white and 40% black. The neighborhood in which the school is located is largely white and lower middle class. Lanier was selected as the site of the computer science magnet program based on location, equipment, and staff availability. The program was conceived as an extension of the computer courses already offered at Lanier.

Staffing

There is only one teacher at Lanier specifically labeled as a member of the magnet staff. He is the director of the magnet computer program. Previous to the implementation of the magnet, he taught in the Lanier computer program and was a natural choice for magnet director. He designed and implemented the curriculum by drawing on his 15 years with IBM, experience with his own computer software business, and current contacts in the industry. The program is academically well suited to the students and in touch with current trends in the field. Through a popular summer course, the magnet director recruits minority students to help keep the program within the required racial balance. Not only is he a magnet program recruiter, but also acts as an employment service by placing students in his own business or elesewhere in the computer industry.

Students

The only requirement for admission to the Lanier program is a one year computer science prerequisite. There are currently 51 students enrolled in the program, and only 17 of these came from other schools. The remaining 34 were already enrolled at Lanier. Recruitment into the program is primarily done outside the school system through the summer program taught by the magnet teacher.

Curriculum

The curriculum of the computer science magnet program consists of four core courses: Computer Science I-Basic, Computer Science II-Advanced Basic and FORTRAN, Computer Science III-COBAL, and Computer Science IV-FORTRAN and business applications of both FORTRAN and COBAL. Since the magnet program is considered an elective one, students must complete the standard high school curriculum taught at Lanier as well. Credit is given by the cooperating university for the Computer Science II, and Computer Science IV courses which can be substituted for the 1st and 2nd level computer courses at the university.

Courses in the magnet program focus on acquiring familiarity with the computer and computer processes including repair and maintenance. Students receive training in programming, computer operations, systems design, and key entry skills. Each course is organized into two days of classroom teaching and three days of lab work.

Features Unique to the District

Although there are one or two other computer programs in Valley City, the magnet program is unique in many ways. The advanced computer curriculum including COBAL is not available elsewhere in the school system. The computer program at Lanier is the best equipped in the district and, according to the magnet teacher, in the "nation." The computer center contains a Data General Eclipse s/200 computer, a line printer, matrix printer, a card reader, key punch machine, and 23 terminals.

The students of this program are distinctive among their peers as well. Due to the advanced nature of the program they can receive college credit from the university for the work they do in high school. The students have considerable success in the job market. Some students have been placed in jobs paying $1,000 a month, with the company making a promise of support for college tuition. Other students have been hired upon completion of high school at salaries comparable to those of college graduates. Generally, Lanier magnet students are largely sought by the business communities because of the skills they have acquired through the magnet program. The students have a college placement rate of 80 percent into computer science and a general college placement rate of 90 percent.

Key Factors in Success

The key factor in the success of the Lanier program is the leadership ability of the magnet teacher. Not only did he design and implement the curriculum, but he manages the program as well. He is the top recruiter by reason of the summer class he teaches. He also serves as a one-man employment agency, placing his students in positions in his own company and with his contacts in the industry. His own experience and expertise, as well as that of his colleagues in the industry, have been invaluable resources for the program.

Another factor in the program's success is local corporate support. Each high school in Valley City is paired with a business in the area. Lanier's partner is the Westinghouse Corporation, which has substantially assisted the school through the donation of used equipment, instructional materials, and lectures by company representatives. Local business and industry representatives serve on the program advisory committee and offer summer jobs and training for selected students from the magnet program.

GRABLE HIGH -- SUNSHINE CITY

Theme/Purpose

The Grable school is a total-school magnet based on a central theme of creative and performing arts. The defined objective of the arts program is "the development of the student as a self-directed, disciplined, goal-oriented individual with a love and respect for all people."

Development

The creative and performing arts magnet was opened in 1978, largely because of the federal court order directing the desegregation of racially isolated schools through magnet schools. When it originally opened, the magnet served grades four through six, then added a grade per year to its present structure of grades four through twelve.

Staffing

The staff was primarily chosen by the principal who has the ultimate authority in staff selection. The selection process includes an interview with a screening committee consisting of a representative from the district school board, a staff member of the school, the president of the community PTA, and the principal. The original staff helped to select the principal.

The current staff totals 59, of which 95 percent were recruited from other schools within the district, and five percent from schools or institutions outside the district. Most of the staff are well-suited to the theme of the school. One teacher is a part-time dance teacher at a local university, and also runs her own dance studio.

The principal of the school is especially qualified for her position. She is extremely motivated and dedicated to the school and its goals. Her administration is based on a "transactional analysis" approach emphasizing love and respect for all people. She believes that students must experience success in order to learn and grow.

Students

There are no selective admission procedures at Grable. In an attempt to reach the goal of an equal number of minority and majority students, the district established a priority system to govern student selection. First priority is given to minority and majority students who have been enrolled in an identified magnet program for at least one year and want to continue to the next grade; second, to neighborhood majority-minority students; third, to applicants from racially isolated schools, and students enrolled in other integrated programs who wish to continue the next level of schooling at the Grable High magnet. The priority list continues down to include other categories of students, with the prevailing consideration being the enhancement of desegregation in the receiving and sending schools. In the 1982-83 year, the creative and performing arts magnet is operating at its capacity of 1,142 students. Of this total, 403 are black, 610 are white, 80 are Hispanic and 49 are other minority, thus virtually attaining an equal minority/majority ratio. The waiting list for admission is equal to its assignable capacity.

Curriculum

The arts curriculum was designed by teacher-specialists in all the academic subjects; vocal and instrumental music, visual arts, drame/theatre, and dance. The curriculum is designed so that all

DONALDSON SECONDARY MAGNET -- MILLVILLE

Theme

The programmatic theme of the Donaldson Secondary magnet school is the fine arts, emphasizing the areas of music, theatre, visual arts and dance. Serving grades five through nine, the major objective of this total-school magnet is to "provide exposure and preliminary training in these areas of the arts based on the interests of the students."

Development

The Donaldson magnet school opened in the fall of 1981 following a two-year planning and development process. The school is one of three magnet programs placed in buildings that formerly housed virtually all black enrollments in the inner-city of Millville. The county school district created these magnets in an attempt to balance the racial composition of white and black students in the three schools and to increase their enrollment. In 1972, the county had been ordered by the court to implement a mandatory desegregation plan which called for busing and pairing of elementary schools, but these three schools remained as "pockets of segregation" until the magnets were developed.

The Donaldson theme is an outgrowth of the district's parental interest in an arts magnet as well as the strong arts tradition in Millville, which has a professional ballet, an opera, and an orchestra (somewhat unusual for a city of fifty thousand). School board and staff trips to arts magnets around the country, seeking curricular advice, also helped to establish the theme and design. Wide community interest was generated through meetings, media exposure, surveys, and recruiting.

students, regardless of grade, can get involved in the theme of the school. Classes are divided, not by grade level, but by ability. Students participate in a full academic program with the additional opportunity of exploring a variety of fine arts.

Features Unique to the District

As with many magnet programs, the feature that makes the creative and performing arts unique is its curriculum. It is the only arts-oreinted magnet program in the district, and the only fourth through twelfth grade magnet program. Fourth through sixth grade students spend fifty more minutes in school than their peers in other schools. All magnet students are required to take an additional period of instruction with an option for another period as well.

Factors in Success

The central factor in Grable's success is its well coordinated program which effectively integrates curriculum, theme, and teaching methods. Another factor in its success is strong leadership from the principal, and the resource coordinator who is responsible for selecting all artistic productions. These two individuals are responsible for the excellent coordination of the program.

Another important factor in Grable's success is the energy and enthusiasm of the students and staff. All have a very positive attitude toward the program. A "family" feeling within the school has sprung up from this enthusiasm and energy. There is a low remand rate as most of the students are there because they want to be.

Grable receives strong outside support from the theater departments of local universities and other local groups. Parent participation is also very high, and the parents organization recently raised enough money to carpet the library.

RIVER HIGH -- Regional City

Theme/Purpose

River High School is a college preparatory high school emphasizing academics and the arts.

Development

River High opened as a magnet school in September of 1980. Formerly an all-black school, River High was selected as the magnet site as a part of the central administration's effort to attract parents and students who had fled the system. In order to design and plan a program to attain this goal, the administration not only surveyed magnet programs in other districts, but also reviewed private and parochial schools in Regional City. It was learned that their private and parochial schools, to which many students had transferred, offered strong curricula in the a areas. As a result, the magnet program was designed with an exempl ry academic curriculum and theme. To further distinguish the magnet from regular high schools, an extensive program in the arts and life sports was included.

Staffing

The principal of the school selected the staff. The teachers already teaching at the River High had to reapply to teach in the magnet. Each application was reviewed by the principal. In instances where she was not pleased with the qualifications of the interested applicants, she went to the central personnel office and reviewed the records of teachers who had not yet applied for magnet positions. She also sought recommendations from her colleagues and other teaching staff. Each applicant was interviewed to determine his or her knowledge and skill in their subject area, degree of commitment and dedication, level of support for the magnet philosophy, and the ability to relate to other racial or ethnic groups. All of the fifty two staff members were recruited from schools inside the district.

The principal is the key administrator in charge of implementing the magnet program and a major factor in the school's success. She led the planning of the theme and curriculum. She then visited community groups, schools, and PTA meetings in order to "sell" the program. She has helped alleviate the resentment of black parents to the school, since a black junior high was lost due to the magnet. She has gone door-to-door to talk with parents and made considerable efforts to draw them into school activities. Her overall strengths include: high academic expectations, ability to analyze and select quality staff, salesmanship, understanding the needs of youth, dedication to the program, capacity for relating to the community, and strong leadership.

Students

Students desiring admission to River High School must have a 2.5 grade point average (on a 4 point scale). Applicants must be reading on or above grade level as determined by standardized achievement test scores. A 95 percent attendance record and parental permission are also required. All applicants meeting these criteria are ranked, with black and white applicants being ranked separately, and those ranked highest are admitted.

The student body totals 465 students. Only an estimated 2 percent came from the attendance areas previously served by the junior high school. Staff from the magnet visit all junior high school and middle schools in the district to recruit students. In order to draw more black students, one of the magnet counselors, who is black, visits the predominantly black junior high schools to speak personally with students, not only encouraging them to apply but also asking what could make the school more attractive. Some program changes have been made based on these recommendations.

Curriculum

The curriculum at River High provides extensive course offerings in English, ROTC, foreign languages, physical education, math, music, business, science, social studies, and visual arts. Students must enroll in a minimum of six courses per semester with no "early outs" for seniors or study halls. All the students are expected to pursue an "honors with Distinction Program", which involves earning twenty four credits for graduation as opposed to the district norm of twenty two. A large number of students graduate with an "Honors with Excellence" diploma. This demands an extra science unit and two units of a foreign language that is normally not required. Students earning this degree must have maintained a 3.5 grade average and enrolled in enriched English, mathematics, and history classes.

Features Unique to the District

The River High Magnet differs from other regular high schools in the area of curriculum. It is unique in the extent and variety of academic offerings. Also unique is the life sports program which includes tennis, golf, fencing, badminton, bowling, swimming, archery, and other althletic endeavors. No other school confers the "Honors with Distinction" or "Honors with Excellence diploma". It is also distinctive because it is the only magnet high school in the district.

Staffing

Ultimately, the selection of the staff for the Donaldson arts magnet was made by the principal of the school. She based her selection on such factors as "commitment to concept," "proven record," "dedication to teaching", a performing arts background", and a high degree of flexibility. Seventeen of the faculty were volunteer applicants who had taught in district schools. Six members of the staff are professional artists from the community who were recruited by the principal and hired as "other resource staff" by special permission of the state department of education.

The principal at Donaldson is the key factor in the school's success, and she also led the planning of the district program as the magnet director. With her natural leadership qualities and high energy, she is involved in every aspect of the school, including curriculum, administration, discipline, guidance as well as occasional teaching (formerly a music major). She has a high degree of self-identification with the program as is primarily responsible for promoting the growth of faculty, student body, and curriculum. Her other strengths include advocating for resources, recognizing the types of staff that are needed, leading teachers, and relating to students. While inclined toward innovation, the principal has the school adhere to many traditional educational standards, such as stricter dress, behavior and language rules, and high emphasis on basic skills and expectations for academic performance.

Students

There are no formal academic entrance requirements to the Donaldson program, although a "C" average is a general standard. Good conduct and attendance records are required. The primary criterion for admission is evidence of interest in the arts which is assessed through an interview.

The student body of Donaldson numbered 310 in the 1982-83 school year with a waiting list of 250. The school enjoys a fifty-fifty majority/minority ratio with 146 black students, nine Hispanic students, and 155 white students. Donaldson has attracted five to ten percent of its students from private schools.

Recruitment of students is done primarily through the media, student performances, and activities in other schools and in the community. There is also a large parent recruitment effort. Letters to principals and guidance staffs of elementary schools explaining the program supplement these efforts.

Curriculum

Developed by the principal and a planning assistant, who had visited arts magnets in other districts, the curriculum of the Donaldson magnet is based on the standard district curriculum for the grades it serves. Added to this basic curriculum are courses in the four arts areas. The curriculum is structured by grade level except for English and foreign languages which are mixed across grade levels and grouped by performance rankings.

Each student must enroll in two fine arts areas every semester. Since there are no areas of concentration, a student may switch after a year, but must have taken courses in all four areas of dance, drama, instrumental and vocal music, and visual arts. In addition to course requirements, there is a strong emphasis on performances which require after-school and evening rehearsals and trips to other schools and communities.

Features Unique to the District

Although based on a district-wide curriculum, it is Donaldson's curriculum that makes it distinctive from other schools in the district.

Students at Donaldson also have the unique option of moving at their own pace in reading and math courses. But most of all, students differ from their peers in other schools in class time they devote to arts courses, and the comprehensiveness of the arts opportunities offered them.

Aside from curricular considerations, the Donaldson School in particular, and the magnet schools in general, differ from regular schools in several ways. Magnets have the district reputation of offering high quality public education. The application, interview, and selection process tends to "self-select" interested students and those with an arts orientation. Students tend to be more highly motivated and dedicated than their nonmagnet peers.

Additionally, students who do not maintain academic or behavior standards (at Donaldson a "C" average), can be remanded to their sending school. Regular schools do not have this privilege.

Factors in Success

One of the key factors in the success of the Donaldson program is that the theme, curriculum, and teaching methods are well coordinated into a coherent educational program. Most of this is achieved through the administration of the principal. Her leadership and recruitment effort are important to Donaldson's success is the suitablity of its teaching staff, many of which are arts professionals. One of the theater intstructors, for example, is production director for the Millville Ballet and Opera.

Donaldson has also taken full advantage of the resources of the arts community. Students take part in performances in the community, as well as use local facilities of organizations such as the Millville Community Theater. The artist in residence of the Millville College has worked with the students as have many other specialists.

PETERS HIGH -- VALLEY CITY

Theme

Peters High School hosts two magnet themes, an Army Junior Reserve Officer's Training Corps (JROTC) program and a Law and Public Service program.

Development

The JROTC course has been a magnet program four years, operating one year at Peters previously. The Law and Public Service program only one year old. Valley City instituted magnet programs in 1979 in response to pressure by the city Human Relations Committee to desegregate the schools. The main motivation for developing magnets was to avoid mandatory action, but nevertheless in 1980 a mandatory desegregation plan was implemented.

Peters High School is located in the middle of a cemetery in a stable, predominantly white, blue collar community. Prior desegregation attempts at Peters School were violent, and it had one of the worst race riots in public school history. The major objective of the magnet programs was to facilitate desegregation, without violence. Racial tension has been relieved to a certain extent and after having a 90 percent white student body fifteen years ago, the student body is now 60 percent white. Both of the magnet programs were introduced by the initiative of the present principal of the school.

Staff

The director and chief instructor of the JROTC program is a retired Army colonel with twenty five years military experience.

The colonel was on the staff prior to the program's becoming a magnet. The rest of the ROTC staff, which consists of another officer and two sergeants, was hired three years ago by the colonel and approved by the principal and the district office. All members of the program staff have at lest twenty years of experience in the Army and have served at least one tour of duty in Vietnam. Given their military background, the staff of the JROTC is more than well suited to the theme of the magnet program.

The staff of the Law and Public Service Program consists of one instructor. He was recruited by the principal of Peters because he had been teaching social studies there for 14 years. He, too, seems to be well suited to the theme of the program.

The principal at Peters was assigned right after the racial riot at the school. He has been there for seven years and is well respected, energetic, committed, and offers strong leadership to his staff.

Students

Admission to the magnet program at Peters is by lottery with major consideration given to racial balance. The programs are open to all students in the district and currently many students travel at least one hour, and change as many as four buses before getting to the school. There is also an extensive waiting list for both programs. There are currently twenty-eight students enrolled in the Law and Public Service Program, which is currently opened only to ninth graders. The current enrollment of the JROTC program is 225 of which 25 percent are female.

Curriculum

The JROTC program is based on a Program of Instruction developed by the Army Deputy Chief of Staff for the ROTC. The program provides a guide for the curriculum to be followed by those secondary schools which host the JROTC program. The major emphasis is on leaderhsip development, and the objective of the program is to prepare cadets to become responsible citizens.

The JROTC program is a four year course in which students must take 108 required hours of instruction per year. This includes Introduction ROTC/Army, Leadership Theory, Drill/ Ceremonies, Hygiene/First Aid, Maps/Map Reading, Techniques of Oral Communication, Marksmanship, and Safety. In addition to meeting all JROTC requirements, the students must fulfill school requirements as well.

The Law and Public Service curriculum was developed by people from the community (lawyers, professors, and judges), an assistant superintendent of secondary education, an area supervisor, the director of curriculum, the principal, and the magnet instructor. The program is in the embryonic stage, because the high school which originally housed the program is systematically closing grade by grade and transfering students to other schools. The program currently is offered only to ninth graders but will be expanded to the tenth grade in 1983-84 and will include grades nine through twelve in 1984-85, as its original host school closes down completely.

The Law and Public Service curriculum consists of law, social studies, and English instruction. Nine units are taught in these areas and fifteen days are alloted to teach each unit. Classes meet for the last two periods of the day. Every tenth day the students go on a field trip. Guest lecturers from the community often visit the classroom as well. Classes are taught in lecture style with many small group assignments.

Features Unique to the District

The most distinctive thing about the JROTC magnet program at Peters is its curriculum. There are no other JROTC courses in the district. This program is also distinctive in that it is more academically demanding than other programs in the city. Students in the JROTC program, for example, must not only fulfill the requirements prescribed by the school system by the Army curricular requirements as well. Aside from having more demanding course loads, JROTC students differ from their peers in that the cadets are required to wear uniforms on "dress day" (Wednesday) for inspection. For one day a week, they are set apart from other students by the uniform.

The Law and Public Service magnet curriculum is not unique to Peters because it operates at other schools. It is distinctive in that is is more rigorous academically than other district programs. It is different from other magnets in that it is the only one that strongly encourages the students to maintain at least a "B" average.

Factors in Success

One of the keys to the success of the Peters JROTC program is its focus on leadership development. Students in this activity focus more on earning higher ranks and ribbons rather than the race and background of other students. A good cadet must learn to take orders from his superior officer no matter what color he is.

The leadership of the principal of Peters has also been important to its success. He is willing to move on innovative ideas immediately. It is he who is responsible for the creation and continuance of the magnet programs.

The magnet programs also enjoy considerable community support. A very active Parent Representative Organization volunteers its time and resources to the school. Lawyers, judges, and other professionals from the community have offered their services as guest lecturers in the Law and Public Service program.

GREEN K-12 SCHOOL -- CLAY CITY

Theme

The Green School in Clay City serves grades K-12. It offers an "alternative" education to its students featuring cross-grade, cross-race, and individual-paced instruction.

Development

The Green Alternative School opened its doors in November, 1971. The school concept was developed from a planning program in humanistic psychology organized by the Clay City superintendent of schools. The superintendent and school board decided to develop an "alternative" school based on the humanistic approach and individualized instruction. The school was originally located in a hotel and office building which had been acquired by the city. The alternative principal formerly was a staff member with the state department of education who was brought in to plan the building renovation and the program. Although the impetus for the idea came from the board of education, the nucleus of support for the school originated with the parents in the professional community who found the alternative school approach educationally attractive.

When the Green School was moved to its present location, a "traditional" school building in downtown Clay City, there was considerable impact on the program. The school had grown with the specialness of the refitted hotel -- learning centers had been developed and a special "space" and environment was created. The atmosphere and the morale changed when the school was moved to a "conventional" building where most of the learning centers and open space had to be phased out. However, with renovation of the new complex, along with the passage of time, morale has improved and both faculty and students are adjusting to the new site.

Staffing

The principal had complete discretion in the selection of the staff of the Green Alternative School, selecting those candidates whose philosophy closely matched the concept she was developing. All 36 staff members at Green were recruited from within the district. Teachers who are not comfortable with the school's approach or are not effective are generally "counseled" out or "traded" by the principal.

The principal of Green Alternative is the most important member of the staff. She is energetic and involved. She has a good understanding of her staff strengths and weaknesses as well as a solid knowledge of her students. She is also a strong and effective administrator.

Students

All applicatns for the Green School are examined through interviews, but admitted without reference to grades or test scores. Children with learning disabilities or hyperactivity are screened out based on short-period observations. Priority is given to students who were "wait-listed" from the previous year's lottery. Parents and students mainly learn of the Green Alternative magnet through word-of-mouth contacts with current students, parents, and staff. Students are selected with consideration given to race to ensure maintenance of the desired ethnic balance. This procedure has, thus far, exempted the Green program from the mandatory desegregation plan.

The Green Alternative School has a current enrollment of 550 students in grades K-12. It enjoys a fifty/fifty white -minority racial balance within its student body.

Curriculum

The Green Alternative School curriculum is based on a multi-grade, individual-paced program. The basic curriculum consists of English, science, mathematics, social studies, art, music, and other state course requirements. The elective courses are unique to the school and its "open" philosophy, which include Ethnic Literature, Living with Mass Media, and Science for Today's Living. An extensive apprenticeship and internship program is also offered. The teachers make use of many innovative methods such as learning centers and modular units.

Factors in Success

The Green Alternative School theme is a unique feature that has aided its success. There is no other open school alternative or mixed-grade school in the district.

A major factor in the success of the Green School has been the leadership of the principal. She developed the concept, planned the building, and recruited the staff. Overall, it is the principal of the school who has managed the program since it opened. It is her excellent administrative abilities that have been the primary factor in the school's success.

Another key factor in the school's success is parental support. The parents of the Green students assisted the school's development and continue to support it through extensive volunteer work in the school. They have also demonstrated their strong commitment to the school by taking responsibility for their children's transportation.

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